17. Tribe MILLETIEAE

崖豆藤族 ya dou teng zu

Wei Zhi (韦直), Chen Dezhuo (陈德昭 Chen Te-chao), Zhang Qiangxiang (张贤湘), Sun Hang (孙航); Les Pedley

Trees, lianas, or shrubs. Stipules often caducous. Leaves pulvinate, usually imparipinnate; leaflets (1–)5–15(to over 40), usually opposite, rarely alternate; stipels present or absent. Inflorescences various, but not in elongated racemes. Flowers often in fascicles and these arranged in pseudoracemes or pseudopanicles, sometimes on leafless branches or on main trunk. Bracteoles usually present. Calyx various, truncate or with 4 or 5 short lobes. Corolla papilionaceous; standard with or without basal calluses; wings free or ± adherent to keel. Stamens 10, monadelphous or diadelphous; vexillary filament free or connate to others; anthers versatile, sometimes with trichomes. Disk generally present, tubular, surrounding stipe of ovary; ovary with 1–12 or more ovules. Legumes dehiscent or indehiscent, winged or not; valves woody or papery. Seeds variously shaped, flat or round in cross section; testa hard or woody.

About 45 genera and 900–920 species: widespread in tropical and subtropical regions of the world, poorly represented in Australia, Callerya extending into temperate parts of China, and Wisteria extending into temperate parts of E Asia and North America; 13 genera and 84 species (35 endemic, five introduced) in China.

This tribe was incorrectly named Tephrosieae in FRPS. The name Millettieae has priority.

1a. Inflorescences racemes or panicles; flowers solitary in axil of a bract.

2a. Inflorescences racemes (or sometimes panicles in Afgekia); bracts longer than corresponding flower buds, persistent and covering them completely until anthesis.

3a. Corolla standard with 2 basal curved laminar calluses; ovary with trichomes, with 2 ovules; legume inflated, tardily dehiscent with 1 or 2 seeds; valves thickly woody ................................................................. 69. Afgekia

3b. Corolla standard without basal calluses; ovary glabrous, with 9–12 ovules; legume linear, raised over seeds; dehiscing along adaxial suture, with 4–10 seeds; exocarp fleshy (papery when dry) and endocarp thin, leathery, lining seed cavity .................................................................................................................. 70. Sarcodum

2b. Inflorescences racemes or panicles; bracts occasionally as long as flower buds, not persistent or not covering them completely.

4a. Trees; stipels absent; flowers 0.8–1 cm; corolla standard long ovate, length:width ratio 2–2.5; anthers dehiscing by short terminal slits; legumes dehiscent, thickly woody, not winged, with 1 or 2 seeds ................................................................. 68. Antheroporum

4b. Lianas or sprawling trees or shrubs; stipels present, caducous, or absent; flowers 0.8–3 cm or more; corolla standard ovate to orbicular, length:width ratio less than 2; legume tardily or not dehiscent, leathery or woody, winged or not, with 1–10 seeds.

5a. Flowers in pendent racemes; corolla standard with 2 distinct basal calluses forming a ridge on distal part of claw; legume leathery, compartmented, not winged .................................................................................................................. 75. Wisteria

5b. Flowers in terminal or axillary panicles, not pendent; corolla standard either without calluses or calluses not forming a ridge on distal part of claw; legume not compartmented, winged or not.

6a. Corolla wings free from keel at least proximally; ovary sessile or stipitate; legume with 1 or 2 wings; seed hilum eccentric ................................................................. 67. Aganope

6b. Corolla wings often partially adnate to keel; ovary stipitate; legume not winged; seed hilum not markedly eccentric .................................................................................. 73. Callerya

1b. Inflorescences pseudoracemes or pseudopanicles; flowers inserted on short lateral branches of floral axis (brachyblasts), these occasionally reduced to a bract subtending 2 or 3 bracteate flowers.

7a. Leaflet secondary veins numerous, straight, closely parallel, few or not anastomosing, extending to margins; legumes not woody; shrubs or herbs with woody bases .......................................................................................................................... 77. Tephrosia

7b. Leaflet secondary veins relatively few, curved, usually anastomosing, not extending to margins; shrubs, trees, or lianas.

8a. Inflorescences cauliflorous on trunk or older branches or axillary on branchlets of previous year; supra-axillary buds covered by many subulate cataphylls .................................................................................................................. 71. Fordia

8b. Inflorescences not on older branches, trunks, or branchlets of previous year; buds not covered by cataphylls.

9a. Flowers borne on slight protuberances of floral axis, mixed occasionally with solitary flowers.

10a. Ovary with (1 or) 2–10 ovules; legume dehiscent, flat, sometimes inflated but then secondary veins reaching margins, or legume velutinous ................................................................. 72. Millettia

10b. Ovary with 2 ovules; legume indehiscent, thick with secondary veins not reaching margins, glabrous .......................................................................................................................... 74. Pongamia

9b. Flowers borne on distinct projections of floral axis (brachyblasts).
11a. Leaves 3-foliolate, lateral leaflets markedly asymmetric; stamens diadelphous 76. Craspedolobium
11b. Leaves 7–21-foliolate, or if fewer leaflets (1–5) then lateral ones symmetric; stamens monadelphous or rarely vexillary stamen free in bud and adherent to others in mature flowers.

12a. Legume dehiscent, not winged on sutures or with 2 wings perpendicular to adaxial or both adaxial and abaxial sutures; flowers 2–5 in clusters or fascicles on knoblike brachyblasts 72. Millettia
12b. Legume indehiscent, winged on both abaxial and adaxial sutures; flowers 3–15 or more at tip of brachyblasts or scattered along them.

13a. Flowers 3–15 or more usually scattered along knoblike or slender brachyblasts; corolla standard without calluses; anthers without indumentum 65. Derris
13b. Flowers 2 or 3(–5) at tip of slender brachyblasts; corolla standard with prominent basal calluses; anthers usually with some indumentum 66. Paraderris

65. DERRIS Loureiro, Fl. Cochinch. 2: 423, 432. 1790, nom. cons.

Chen Dezhao (陈德昭 Chen Te-chao); Les Pedley

Brachypterum (Wight & Arnott) Bentham; Dalbergia subg. Brachypterum Wight & Arnott.

Lianas, rarely erect shrubs or trees. Stipules small. Leaves imparipinnate; stipels absent; leaflets opposite, margins entire. Inflorescences axillary pseudoracemes, these often combined with terminal or axillary pseudopanicles; rachis nodes with 1 to many flowers, fascicled on a short spur or branchlet; bracts and bracteoles small, deciduous. Calyx campanulate or cup-shaped, apex subtruncate or with 4 or 5 short and broad teeth. Corolla white, purplish red, or pink, longer than calyx; standard broad, usually glabrous but outside sometimes subglabrous or pubescent, without basal calluses; wings long clawed, often auriculate, adhering to keel; keels incurved, base often auriculate, apex blunt. Stamens monadelphous. Ovary sessile or with a short stipe, with 1–11 ovules; style incurved; stigma capitate. Legume globose, oblong, or ligulate-oblong, indehiscent; adaxial or both adaxial and abaxial sutures with a narrow wing. Seeds 1 to several per legume, reniform, compressed.

About 50 species: tropical and subtropical Africa, Asia, Australia, and Pacific islands; 16 species (nine endemic) in China.

1a. Legume winged only on adaxial suture.

2a. Leaves more than 13-foliolate.
3a. Leaflet blades 1.5–4 cm; trees 1. D. robusta
3b. Leaflet blades 5–7.5 cm, lianas 2. D. eriocarpa

2b. Leaves 11-foliolate or less.

4a. Leaves (3 or)5(or 7)-foliolate 5. D. trifoliata
4b. Leaves 7–11-foliolate.
5a. Leaflet blades abaxially densely puberulent 3. D. yunnanensis
5b. Leaflet blades abaxially glabrous 4. D. harrowiana

1b. Legume winged on both sutures.

6a. Leaflet blades abaxially pubescent or puberulent.

7a. Branchlets robust, densely rust-colored pubescent; leaves 5–9-foliolate, leaflet blades adaxially shiny; legume with wing of abaxial suture only slightly narrower than wing of adaxial suture 6. D. ferruginea
7b. Branchlets slender, glabrescent; leaves 5-foliolate, legume blades adaxially not shiny; legume with wing of abaxial suture almost 1/2 width of adaxial suture wing 7. D. cavaleriei

6b. Leaflet blades abaxially glabrous.

8a. Flowers in pseudoracemes.

9a. Leaflet blade apices caudate-acuminate; calyx glabrous 8. D. caudatilimba
9b. Leaflet blade apices obtusely acuminate to shortly obtuse; calyx puberulent or pilose.

10a. Legume adaxial wing ca. 5 mm wide, abaxial wing 1–2 mm wide 11. D. tonkinensis
10b. Legume adaxial wing 3–5 mm wide, abaxial wing 0.5–1 or 2–3 mm wide.

11a. Leaves 5–7-foliolate; legume abaxial wing 2–3 mm wide 9. D. breviramosa
11b. Leaves 7–13-foliolate; legume abaxial wing 0.5–1 mm wide 10. D. scabricaulis

8b. Flowers in pseudopanicles.

12a. Rachis of inflorescences pilose, hirsudulous, or pubescent.

13a. Trees or climbing shrubs 11. D. tonkinensis
13b. Lianas.

14a. Leaves 5–7-foliolate, leaflet blades thickly papery to thinly leathery; legume 4–10 cm, thinly leathery 12. D. fordii
14b. Leaves (3 or)5-foliolate, leaflet blades leathery; legume 2–5 cm, leathery .................. 13. *D. alborubra*
12b. Rachis of inflorescences glabrous.
15a. Leaflet blades 5, closely inserted on a very short rachis, forming subpalmate leaves .......... 16. *D. palmifolia*
15b. Leaflet blades 5 or 7, forming distant pinnate leaves.
16a. Leaflet blades obovate-elliptic to obovate; flowers fascicled on branches of inflorescences .......................................................................................................................... 14. *D. marginata*
16b. Leaflet blades elliptic; flowers scattered on branches of inflorescences .................................. 15. *D. laxiflora*


大鱼藤树 da yu teng shu

*Dalbergia robusta* Roxburgh ex Candolle, Prodr. 2: 417. 1825; *Brachypterum robustum* (Roxburgh ex Candolle) Dalzell & Gibson.

Trees, 10–15 m tall, deciduous. Branches slightly sparsely pubescent, glabrescent. Leaves 13–21-foliolate; rachis 10–15 cm, including petiole 1.5–4 cm; leaflet blades oblong to obovate, 1.5–4 × 0.9–1.5 cm, membranous, both surfaces puberulent or adaxially glabrous, base obliquely cuneate, apex obtuse and shortly cuspidate. Pseudoracemes axillary, elongated, 5–15 cm; rachis nodes with 2 or 3 fascicled flowers. Pedicel 4–5 mm, slender. Flowers ca. 8 mm. Calyx campanulate, 2–5 mm, outside sericeous; teeth minute, deltoid. Corolla white; petals all long clawed. Ovary sessile, densely pubescent; style long and incurved, glabrous. Legume oblong, flat, 5–15 × 2–2.5 cm, densely yellowish brown shortly villous, base abruptly constricted, apex obtusely acute; adaxial suture with a 1–2 mm wide wing. Seeds 1–5(–10) per legume. Fl. Feb–Apr, fr. May–Jan. 2n = 22.

Mountain slopes; 300–1600 m. Yunnan [India, Laos, Myanmar, Thailand, Vietnam].


毛果鱼藤 mao guo yu teng

*Lianas. Young shoots rust-colored puberulent. Leaves 13- or 15-foliolate; rachis 20–30 cm, including petiole 5–6 cm; rachis and petiole canaliculate, sparsely puberulent; leaflet blades oblong to obovate-oblong, 7–16 × 2–2.3 cm, compressed, glabrous, apex mucronate; adaxial suture with a 2–4 mm wide wing. Seeds 1–4 per legume. Fl. Jul–Aug, fr. Oct.

Mountain slopes; 300–1600 m. Yunnan [India, Laos, Myanmar, Thailand, Vietnam].


云南鱼藤 yun nan yu teng

*Lianas. Large. Young shoots, petioles, pedicels, bracteoles, and legumes yellowish puberulent. Branchlets robust. Leaves 9- or 11-foliolate; rachis ca. 25 cm, including petiole 4–4.5 cm; leaflet blades oblong or apical one oblancoelate, 6.5–11 × 2–3.5 cm, subleathery, abaxially densely yellowish puberulent, adaxially glabrous or yellowish puberulent in vein axils, base broadly cuneate, apex obtusely acuminate. Infructescences axillary. Pseudoracemes axillary, 20–30 cm; rachis nodes with 2 or 3 flowers borne singly along a short branchlet; bracts linear. Pedicel ca. 2.5 mm. Flowers 1.4–2.2 cm. Calyx cup-shaped, 4–6 mm, puberulent; teeth 5, abaxial tooth longer than others, adaxial 2 teeth subconnate. Corolla glaucous whitish, 1–1.4 cm; petals all long clawed. Ovary sessile, densely pubescent; style long and incurved, glabrous. Legume oblong, flat, 5–15 × 2–2.5 cm, densely yellowish brown shortly villous, base abruptly constricted, apex obtusely acute; adaxial suture with a 1–2 mm wide wing. Seeds 1–4 per legume. Fl. Jul–Aug, fr. Oct.

● Cliff bases in mountains; ca. 2000 m. Guangxi, Guizhou, Yunnan.


大理鱼藤 da li yu teng


*Lianas. Branches with tuberculate whitish lenticels. Leaves 7–11-foliolate, juvenile at anthesis; rachis 10–12 cm, including petiole 6–8 cm; leaflet blades oblong-elliptic to sometimes narrowly ovate, 4.5–5.5 × 1.5–2.5 cm, both surfaces glabrous, apex shortly acuminate. Pseudoracemes 12–16 cm including peduncle; rachis nodes with 2 or 3 fascicled flowers. Pedicel 2–3 mm. Flowers ca. 1.2 cm. Calyx campanulate, ca. 5 mm, densely rust-colored sericeous; teeth short. Corolla whitish or rose-red, ca. 7 mm. Stamens 7–8 mm. Ovary sericeous. Legume narrowly oblong, 7–16 × 2–2.3 cm, compressed, glabrous, apex mucronate; adaxial suture with a 2–4 mm wide wing. Seeds 2 or 3 per legume. Fl. Apr–May, fr. Jun–Aug.

● Forests on mountain slopes; 1900–2000 m. Yunnan (Dali).


鱼藤 yu teng

*Derris uliginosa* (Roxburgh ex Willdenow) Bentham; *Robinia uliginosa* Roxburgh ex Willdenow.

*Lianas, glabrous. Leaves (3 or)5(7)-foliolate; rachis
7–15 cm, including petiole 5–9 cm; leaflet blades ovoid-oblong, 5–10 × 2–4 cm, firmly papery to subleathery, base rounded to slightly cordate, apex obtusely acuminate. Pseudoracemes axillary, 5–10 cm; rachis nodes with 2 or 3(–6) fascicled flowers sometimes borne on a short branchlet. Pedicel 2–4 mm. Flowers ca. 1.2 cm. Calyx campanulate, ca. 2 mm, glabrous or subglabrous; teeth very short, obtuse. Corolla whitish to pink, ca. 1 cm; standard suborbicular. Ovary sparsely pubescent. Legume obliquely ovoid, globose, or oblong, 2.5–4 × 2–3 cm, compressed, glabrous; adaxial suture with a narrow wing. Seeds 1 or 2 per legume. Fl. Apr–Aug, fr. Aug–Dec. 2n = 22.

Coastal areas along beaches or riverbanks, thickets, forests; below 1000 m. Fujian, Guangdong, Guangxi, Hainan, Taiwan [Cambodia, India, Indonesia, Japan, Malaysia, Papua New Guinea, Sri Lanka, Thailand, Vietnam; E Africa, Australia, Pacific islands].


锈毛鱼藤 **xiu mao yu teng**

**Robinia ferruginea** Roxburgh, Fl. Ind., ed. 1832, 3: 329. 1832, not Kunth (1823).

Lianas. Branchlets densely rust-colored pubescent. Leaves 5–9-foliolate; rachis 5.5–9(–15) cm, including petiole 3.5–5(–10) cm; leaflet blades elliptic to obovate-oblong, 6–13 × 2.5–5 cm, leathery, abaxially slightly rust-colored puberulent, adaxially glabrous and shiny, base rounded, apex obtusely acuminate. Pseudopanicles axillary, 15–30 cm, densely rust-colored puberulent; rachis nodes with 2 or 3(–8) fascicled flowers often borne on a short branchlet. Pedicel slender, 4–6 mm. Flowers 1–1.4 cm. Calyx ca. 3 mm; teeth minute. Corolla pale red to whitish, 8–10 mm. Ovary pubescent. Legume obovate to ligulate-oblong, 5–8 × ca. 2.5 cm, leathery, flat, densely rust-colored sericeous when young, nearly glabrescent when old; abaxial suture with a 2–4 mm wide wing, adaxial suture with a 3–5 mm wide wing. Seeds 1 or 2 per legume. Fl. Apr–Jul, fr. Sep–Dec.

Sparse forests and thickets, low elevation mountain slopes; 500–1200 m. Guangdong, S Guangxi, SW Guizhou, Hainan, S Yunnan [Bangladesh, India, Laos, Myanmar, Thailand, Vietnam].


黔桂鱼藤 **qian gui yu teng**

**Robinia cavaleriei** Franchet, Fl. Ind., ed. 1832, 3: 329. 1832, not Kunth (1823).

Lianas. Branchlets densely rust-colored pubescent. Leaves 5–9-foliolate; rachis 5.5–9(–15) cm, including petiole 3.5–5(–10) cm; leaflet blades elliptic to obovate-oblong, 6–13 × 2.5–5 cm, leathery, abaxially slightly rust-colored puberulent, adaxially glabrous and shiny, base rounded, apex obtusely acuminate. Pseudoracemes axillary, 15–30 cm, densely rust-colored puberulent; rachis nodes with 2 or 3(–8) fascicled flowers often borne on a short branchlet. Pedicel slender, 4–6 mm. Flowers 1–1.4 cm. Calyx ca. 3 mm; teeth minute. Corolla pale red to whitish, 8–10 mm. Ovary pubescent. Legume obovate to ligulate-oblong, 5–8 × ca. 2.5 cm, leathery, flat, densely rust-colored sericeous when young, nearly glabrescent when old; abaxial suture with a 2–4 mm wide wing, adaxial suture with a 3–5 mm wide wing. Seeds 1 or 2 per legume. Fl. Apr–Jul, fr. Sep–Dec.

Thickets or sparse forests on mountain slopes; 300–1400 m. Guangdong, Yunnan.


尾叶鱼藤 **wei ye yu teng**

Lianas. Branches glabrous, with pale gray lenticels. Leaves 7- or 9-foliolate; rachis 10–15 cm, including petiole 4–5 cm; leaflet blades oblong, 4–10 × 1.4–2.8 cm, papery, abaxially glabrous, midvein raised on both surfaces, secondary veins 6 or 7 on each side of midvein, base broadly cuneate to slightly obtuse, apex cuneate-acuminate. Racemes axillary, narrow and elongated, 10–25 cm; rachis sparsely puberulent, with 2–6 fascicled flowers. Pedicel filiform, 3–5 mm, sparsely puberulent. Flowers 9–10 mm. Calyx campanulate, ca. 3 mm long and wide; glabrous; teeth deltoid. Corolla whitish, 6–7 mm; standard elliptic to orbicular, base subtruncate, apex emarginate. Ovary puberulent. Legume ligulate-oblong, 4–9 × 1.2–1.5 cm, compressed, glabrous; abaxial suture with a 0.8–1.5 mm wide wing, adaxial suture with a 3–4 mm wide wing. Seed 1 per legume. Fl. May–Aug, fr. Nov–Dec.

Thickets or sparse forests on mountain slopes; 500–1400 m. Guangdong, Yunnan.


短枝鱼藤 **duan zhi yu teng**

Lianas. Leaves 5- or 7-foliolate; rachis 15–20 cm, including petiole 6–7 cm; leaflet blades obovate-oblong to oblong, 5–10 × 2.5–4.5 cm, subpapery, glabrous, secondary veins 7 or 8 on each side of midvein, slender, and raised on both surfaces, base broadly cuneate to obtuse, apex obtusely acuminate to shortly acuminate. Pseudoracemes axillary, much longer than leaves, without branches or paniculate and with a few branches near base of rachis; rachis nodes with several fascicled flowers on a 4–6 mm branchlet. Pedicel puberulent, 3–6 mm. Flowers 9–10 mm. Calyx campanulate, ca. 3 mm long and wide, puberulent, with numerous minute orange glandular dots. Corolla whitish, 8–9 mm; petals all clawed; standard oblong. Ovary pubescent. Legume oblong, inserted on scarred nodal short branchlets, 5–7.5 × 1.8–2 cm, compressed, finely veined, glabrous, both ends slightly obtuse; abaxial suture with a 2–3 mm wide wing, adaxial suture with a 3.5–5 mm wide wing. Seed 1 per legume. Fl. Jun, fr. Aug.

Thickets or sparse forests on mountain slopes; 500–1400 m. Guangdong, Yunnan.


粗茎鱼藤 **cu jing yu teng**

**Millettia scabricaulis** Franchet, Pl. Delavay. 158. 1889.

Lianas. Branches scabrous, with convex lenticels, brownish pubescent when young. Leaves 7–13-foliolate; rachis 9–14 cm, including petiole 4.5–6 cm; petiololes blackish brown; leaflet blades obovate-oblong to oblong, 5–9 × 1.5–3 cm, papery, glabrous, base obtuse, rounded, or broadly cuneate and rather oblique except for apical one, apex shortly acuimi-

东京鱼藤 dong jing yu teng

Trees or climbing shrubs. Branches brown to red, glabrous. Leaves 5(or 7)-foliate; rachis 4–8 cm, including petiole 1.5–6 cm; leaflet blades ovate-lanceolate or broadly ovate to ovate-oblong, 3–10 × 1.5–4 cm, firm in texture, glabrous, base rounded but apical one cuneate, apex shortly acuminate to obtuse. Pseudoracemes axillary or terminal, lax or somewhat congested, 7–10 × ca. 5 cm, sometimes paniculate with 1 to many 3–4 cm slender branches, thinly reddish pilose; rachis nodes with 4–6 flowers congested and fascicled or lax and borne on 1.5–2 cm branchlets. Pedicel 6–7 mm, appressed reddish pilose. Flowers 1–1.2 cm. Calyx cup-shaped, 2.5–3 mm, appressed reddish pilose; teeth obscure. Corolla whitish to pink; petals all clawed; standard elliptic, 10–12 × ca. 6 mm, reflexed, base abruptly attenuate. Ovary slightly pilose. Legume ellipsoid, 8–12 × ca. 2.5 mm, flat, glabrous, finely veined, both ends obtusely attenuate; abaxial suture with a 1–2 mm wide wing, adaxial suture with a ca. 5 mm wide wing. Seed 1(or 2) per legume. Fl. Mar–Jun. fr. May–Nov.

Scrub or sparse forests on mountain slopes. Guangdong, Guangxi, Guizhou [Vietnam].

11a. Derris tonkinensis var. tonkinensis

东京鱼藤(原变种) dong jing yu teng (yuan bian zhong)

Leaves 5-foliolate; leaflet blades ovate-lanceolate, 3–6 cm; inflorescences with 1–3 or more branches; flowers lax on 1.5–2 cm branchlets ...................... 11a. var. tonkinensis


大叶东京鱼藤 da ye dong jing yu teng


Guangdong, Guangxi.


中南鱼藤 zhong nan yu teng

Lianas. Leaves 5- or 7-foliolate; rachis 15–28 cm, including petiole 3–8 cm; leaflet blades ovate-elliptic, ovate-oblong, or elliptic, 3–13 × 1.5–6 cm, thickly papery to thinly leathery, both surfaces glabrous, reticulate veins slightly prominent or obscure, base rounded, apex acuminate to slightly obtuse. Inflorescences and pedicels sparsely yellowish brown hispidulous or densely brownish pubescent. Pseudoracemes axillary, slightly shorter than leaves; rachis nodes with several fascicled flowers on short branchlets. Pedicel 3–5 mm. Flowers 1.2–1.3 cm. Calyx campanulate, 2–3 mm, sparsely pubescent; teeth orbicular to deltoid, short. Corolla whitish, ca. 1 cm; standard obovate-elliptic, claw short. Ovary sessile, whitish villous. Legume oblong to ligulate-oblong, 4–10 × 1.5–2.3 cm, compressed, swollen or not when mature, thinly leathery, glabrous; abaxial suture wing up to 1.5 mm wide, adaxial suture with a 2–3 mm wide wing. Seeds 1–4 per legume. Fl. Mar–May. fr. Jun–Nov.

Mountain valleys, scrub, sparse to dense forests, mountain slopes, near trails; Chongqing, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Yunnan, Zhejiang.

1a. Leaflet blades 4–13 × 2–6 cm, reticulate veinlets slightly prominent; inflorescences and pedicels sparsely yellowish brown hispidulous; legume slightly thick, swollen when mature, abaxial suture with a less than 1 mm wide obscure wing ...

1b. Leaflet blades 3–8 × 1.5–3 cm, reticulate veinlets obscure; inflorescences and pedicels densely brownish pubescent; legume thin, not swollen when mature, abaxial suture with a 1–1.5 mm wide distinct wing .......... 12b. var. lucida

12a. Derris fordii var. fordii

亮叶中南鱼藤 liang ye zhong nan yu teng

Leaflet blades 3–8 × 1.5–3 cm, adaxially shiny, reticulate
Dense or sparse forests on rocky mountain slopes. Guangdong, Guangxi, Guizhou, Yunnan.


- Lianas, 6–7 m, evergreen. Leaves (3 or)5-foliolate; rachis 5–14 cm, including petiole 2.5–3.5 cm; leaflet blades elliptic, oblong, or obovate-oblong, 5–8(–15) × 2–5(–7) cm, leathery, glabrous, base broadly cuneate to rounded, apex obtuse and slightly emarginate. Inflorescence rachis and pedicels thinly puberulent; pseudopanicles terminal or axillary, 15–30 cm, narrow; rachis nodes with up to 15 flowers on short filiform branchlets. Pedicel ca. 1 cm. Flowers 1–1.2 cm. Calyx red, obliquely campanulate, ca. 4.5 mm, appressed pubescent but glabrescent. Corolla whitish, 1–1.2 cm; standard suborbicular, base broadly cuneate; abaxial suture with a ca. 2 mm wide wing. Seed 1(or 2) per legume. Fl. Apr–Jun, fr. Jul–Oct.

- Sparse forests or thickets on mountain slopes. Guangdong, Guangxi, Hainan [Cambodia, Laos, Vietnam].

**Derris alborubra** is represented in China by the typical variety. Another variety, **Derris alborubra var. honheoensis** P. K. Lõc, is endemic to Vietnam.


- Lianas, 6–7 m, evergreen. Leaves (3 or)5-foliolate; rachis 5–14 cm, including petiole 2.5–3.5 cm; leaflet blades elliptic, oblong, or obovate-oblong, 5–8(–15) × 2–5(–7) cm, leathery, glabrous, base broadly cuneate to rounded, apex obtuse and slightly emarginate. Inflorescence rachis and pedicels thinly puberulent; pseudopanicles terminal or axillary, 15–30 cm, narrow; rachis nodes with up to 15 flowers on short filiform branchlets. Pedicel ca. 1 cm. Flowers 1–1.2 cm. Calyx red, obliquely campanulate, ca. 4.5 mm, appressed pubescent but glabrescent. Corolla whitish, 1–1.2 cm; standard suborbicular, base broadly cuneate; abaxial suture with a ca. 2 mm wide wing. Seed 1(or 2) per legume. Fl. Apr–Jun, fr. Jul–Oct.

**Derris alborubra** is represented in China by the typical variety. Another variety, **Derris alborubra var. honheoensis** P. K. Lõc, is endemic to Vietnam.


- Lianas, glabrous except for pilose calyces. Leaves 5- or 7-foliolate; rachis 6–9(–12) cm, including petiole 3–6 cm; leaflet blades elliptic, 5–8 × 2.5–4 cm, subleathery, base broadly cuneate, apex obtuse. Pseudopanicles terminal, 15–30 cm, laxly flowered, basal branch elongated but others short; rachis nodes with 2 or 3 fascicled flowers. Pedicel 6–8 mm. Flowers ca. 1.2 cm. Calyx broadly campanulate, ca. 2 mm. Corolla whitish, 7–9 mm; petals all clawed; standard suborbicular, base broadly cuneate. Ovary glabrous. Legume ellipsoid, 5–8 × 1.5–2.5 cm, flattened, glabrous; abaxial suture with a distinct but narrow wing, adaxial suture with a ca. 3 mm wide wing. Seeds 1–3 per legume. Fl. Apr–Jun, fr. Jul–Oct.

- Semi-open areas, thicket margins; below 1000 m. Taiwan.


- Lianas, glabrous except for pubescent young branchlets and flower buds. Leaves subpalmately pinnate, 5–7 cm, with 5 closely inserted leaflets on an abbreviated rachis; leaflet blades ovate-elliptic to oblong, basal pair each 2–3.5 × 1.3–1.5 cm, remaining pairs each 4–5 × ca. 1.5 cm but sometimes apical one larger, secondary veins 6–9 on each side of midvein and very slender, base cuneate to slightly subrounded, apex shortly acuminate. Flowers unknown. Infructescences axillary, 2–3 × as long as leaves, broadly paniculate, with few elongated spreading branches. Legume oblong-ligulate, 4–7 × 1.3–1.7 cm, reticulate veined when dry, base rounded to truncate, apex obliquely pointed; abaxial suture with a less than 1 mm wide wing, adaxial suture with a ca. 3 mm wide wing. Seed 1(or 2) per legume. Fl. Apr–Jun, fr. Jul–Oct.

- Semi-open areas, thicket margins; below 1000 m. Taiwan.


aggregated into pseudopanicles. Brachyblasts rather thin, with (1 or)2 or 3(–5) flowers. Bracts shorter than corresponding flower buds. Bracteoles present. Calyx with 5 short lobes. Corolla white to rose-red; standard blade elliptic to suborbicular, reflexed at base; basal calluses distinct, large; wings and keel petals ± equally long. Stamens monadelphous; upper staminal filament adnate to other 9; anthers usually with trichomes. Disk distinct, flat to slightly hollow. Ovary with trichomes; ovules 1–7. Legume indehiscent, woody to thickly woody; either both sutures with a longitudinal wing or winged only on adaxial suture. Seeds 1 to several per legume, lens-shaped; radicle folded.

About 15 species: through SE Asia to New Guinea, absent from Australia and Pacific islands; six species (three endemic, two introduced) in China.

2a. Leaflet blades subleathery, apex obtuse to acute; flowers less than 1.2 cm; legume ca. 3 cm ........................................ 3. *P. canarensis*
2b. Leaflet blades membranous, apex caudate-acuminate to acuminate; flowers 1.5–1.8 cm; legume more than 4 cm.
3a. Leaflets 9–13, blades abaxially glaucous when dry; branchlets yellowish pubescent; corolla rose-red; pedicel 0.8–1 cm .................................................................................................................... 1. *P. glauca*
3b. Leaflets 13 or 15, branches abaxially olive-green when dry; branchlets glabrous; corolla whitish; pedicel 1–2 cm ................................................................................................................ 2. *P. hainanensis*
1b. Flowers in pseudoracemes; leaflets 5–13.
4a. Leaflets 9–13, blades abaxially sericeous; corolla standard sericeous outside ....................................................... 4. *P. elliptica*
4b. Leaflets 5–9, blades abaxially glabrous; corolla standard glabrous outside.
5a. Leaflet blades papery, 5–9 cm, apex shortly and obtusely acuminate; rachis of inflorescences puberulent .... 5. *P. hancei*
5b. Leaflet blades subleathery, 10–15 cm, apex caudate-acuminate; rachis of inflorescences glabrous; cultivated ...................................................................................................................................................... 6. *P. malaccensis*

1. *Paraderris glauca* (Merrill & Chun) T. C. Chen & Pedley, **comb. nov.**


Lianas. Branches and young shoots yellowish pubescent; branchlets tuberculate, very sparse pilose or glabrescent. Leaves 9–13-foliolate; rachis 7–14 cm, including petiole 3–7 cm; leaflet blades obovate-oblong, 5–7 × 2–3.5 cm, membranous, abaxially greenish white when young but glaucous when old, base cuneate to broadly cuneate, apex caudate-acuminate. Corolla white to rose-red; standard suborbicular, 1.5 cm, claw ca. 3 mm, limb base cordate and with 2 triangular calluses, apex emarginate. Disk distinct, flat to slightly hollow. Ovary with trichomes; ovules 1–7. Legume indehiscent, woody to thickly woody; either both sutures with a longitudinal wing or winged only on adaxial suture. Seeds 1 to several per legume, lens-shaped; radicle folded.

- Forests in mountains; below 700 m. S Guangxi, Hainan.


Lianas. Branches terete, glabrous, with scattered elliptic lenticels. Stipules oblong-triangular, pilose, apex acute. Leaves 13- or 15-foliolate; rachis 8–15 cm, including petiole (4.5–)6–8 cm; leaflet blades obovate to long elliptic, 4–7 × 1.8–3.5 cm, membranous, both surfaces glabrous, abaxially olive-green and slightly whitish green, base broadly cuneate to sometimes sub-rounded, apex caudate-acuminate to cuneate. Cymose pseudopanicles axillary, 10–15 cm. Pedicel 1–2 cm. Calyx campanulate, ca. 4 × 7 mm, subglabrous. Corolla whitish; standard suborbicular, ca. 1.5 cm, claw ca. 3 mm, limb base cordate and with 2 triangular calluses, apex emarginate. Ovary linear, hirsute. Legume oblong to ligulate, 4.5–10 × ca. 2 cm; abaxial suture with a 1–2 mm wide wing, adaxial suture with a 3–4 mm wide wing. Seeds 1 or 2 per legume. Fl. Apr–Jun, fr. Jul–Oct.

- Open forests, scrub on mountain slopes. Hainan.


Lianas. Branches subglabrous. Leaves 9–15-foliolate; rachis to 30 cm, including petiole 4–6 cm; leaflet blades oblong to oblanceolate-oblong, 4–6 × 1–2 cm, subleathery, both surfaces glabrous, abaxially glaucous, apex obtuse to acute. Pseudopanicles much shorter than leaves, rachis short, branches densely compact. Pedicel 3–4 mm, grayish velutinous. Flowers ca. 1.2 cm. Calyx ca. 5 mm. Corolla white or light purple, ca. 1.2 cm; standard ca. 3 mm, reflexed, glabrous. Legume broadly oblong, ca. 3 × 2 cm, glabrous; adaxial suture with a wing ca. 2 mm wide. Seed 1 per legume. Fl. Apr, fr. Jun–Jul.

- Coastal forest margins; below 100 m. Taiwan (Lan Yu) [Philippines].


Lianas. Branches subglabrous. Leaves 9–15-foliolate; rachis to 30 cm, including petiole 4–6 cm; leaflet blades oblong to oblanceolate-oblong, 4–6 × 1–2 cm, subleathery, both surfaces glabrous, abaxially glaucous, apex obtuse to acute. Pseudopanicles much shorter than leaves, rachis short, branches densely compact. Pedicel 3–4 mm, grayish velutinous. Flowers ca. 1.2 cm. Calyx ca. 5 mm. Corolla white or light purple, ca. 1.2 cm; standard ca. 1 cm wide, reflexed, glabrous. Legume broadly oblong, ca. 3 × 2 cm, glabrous; adaxial suture with a wing ca. 2 mm wide. Seed 1 per legume. Fl. Apr, fr. Jun–Jul.

- Coastal forest margins; below 100 m. Taiwan (Lan Yu) [Philippines].


Lianas. Branches subglabrous. Leaves 9–15-foliolate; rachis to 30 cm, including petiole 4–6 cm; leaflet blades oblong to oblanceolate-oblong, 4–6 × 1–2 cm, subleathery, both surfaces glabrous, abaxially glaucous, apex obtuse to acute. Pseudopanicles much shorter than leaves, rachis short, branches densely compact. Pedicel 3–4 mm, grayish velutinous. Flowers ca. 1.2 cm. Calyx ca. 5 mm. Corolla white or light purple, ca. 1.2 cm; standard ca. 1 cm wide, reflexed, glabrous. Legume broadly oblong, ca. 3 × 2 cm, glabrous; adaxial suture with a wing ca. 2 mm wide. Seed 1 per legume. Fl. Apr, fr. Jun–Jul.
**Pongamia elliptica** Wall., Pl. Asiat. Rar. 3: 20. 1832; *Derris elliptica* (Roxburgh) Bentham; *Galedupa elliptica* (Wallich) Roxburgh.

Lianas, 7–10 m, robust. Young branchlets, leaf rachises, petioles, and petiolules densely brown pubescent. Branches glabrous when old, scattered with brown lenticels. Leaves 9–13-foliolate; rachis 20–35 cm, including petiole 4–8 cm; leaflet blades oblanceolate, or oblong, 6–15 × 2–4 cm, thickly papery, abaxially greenish white and finely brown sericeous, adaxially glabrous or only pubescent along veins, base cuneate to broadly cuneate, apex shortly obtusely acuminate. Pseudoracemes axillary, 15–25 cm, densely pubescent. Pedicel 6–8 mm, densely pubescent. Flowers ca. 2 cm. Calyx shallowly cup-shaped, ca. 4 × 6–7 mm, densely sericeous. Corolla pink to whitish, 1.5–1.8 cm; standard suborbicular, 1.2–1.5 cm wide, outside brown pubescent, apex emarginate. Ovary densely pubescent. Legume obovate-oblong, 3.5–8 × 1.7–2 cm, compressed, pubescent when young, glabrescent; abaxial suture with a ca. 0.5 mm wide wing, adaxial suture with a ca. 2 mm wide wing. Seeds 1–4 per legume. Fl. Apr–Aug, fr. Jul–Jan.

- Along trails, near pond banks. Guangdong, Guangxi.


**粤东鱼藤** **yi chi yu teng**


Lianas, 10–15 m, glabrous except ovaries and mouth of calyces. Leaves 5- or 7(or 9)-foliolate; rachis 20–30 cm, including petiole 3–7 cm; leaflet blades elliptic, 10–15 cm, subleathery, base rounded, apex ciliate. Ovary velutinous. Legume oblong, 5–8 cm; both sutures winged, abaxial suture with wing 1–1.2 cm; standard suborbicular, apex truncate or emarginate. Ovary velutinous. Legume oblong, 5–8 cm; both sutures winged, abaxial suture with wing 1 mm wide or less. Seeds 1–4 per legume. Fl. Feb–May, fr. Apr–Aug.

- Cultivated in Guangdong (Guangzhou) and Hainan [native to Cambodia, Indonesia, Laos, Malaysia, Myanmar, Thailand, and Vietnam].


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**粤东鱼藤** **yi chi yu teng**

**Basionym:** *Derris latifolia* Prain var. *malaccensis* Bentham.

**双束鱼藤属** **shuang shu yu teng shu**

Chen Dezhaoy (陈德昭 Chen Te-chao); Les Pedley

Lianas, woody, or sprawling trees. Leaflets (sub)opposite, papery to subleathery; stipules caducous; stipels caducous or absent. Inflorescences terminal or supra-axillary in well-developed pseudopanicles; bracts shorter than corresponding buds; bracteoles caducous. Calyx with cupular or campanulate tube, suborbicular or with distinct teeth. Petals glabrous or slightly pubescent; standard truncate to suborbicular, with or without calluses; wings free from keel at least proximally. Stamens diadelphous, vexillary stamen free from other 9. Disk present; ovary with 1–10 ovules. Legumes compressed, woody; abaxial or both sutures with longitudinal wing. Seeds 1 to several per legume; hilum eccentric; radicle short, straight.

About seven species: tropical and subtropical Africa, Asia, and Pacific islands; three species (one endemic) in China.

1a. Trees; panicles glabrous; leaflets 5 or 7 ............................ 1. *A. latifolia*

1b. Lianas or scendent shrubs; panicles pilose or pubescent; leaflets 5–9.

2a. Calyx ca. 3 mm, sparsely pilose; flowers ca. 0.8 cm; legume 5–10 cm .......................... 2. *A. thyrsiflora*

2b. Calyx ca. 6 mm, densely pubescent; flowers 1.5–1.7 cm; legume 10–15 cm .......................... 3. *A. dinghuensis*

**1. Aganope latifolia** (Prain) T. C. Chen & Pedley, comb. nov.


Trees. Leaves 5- or 7-foliolate; rachis 45–60 cm, including...
petiole 9–15 cm; leaflet blades ovate-oblong to ovate-lanceolate, 14–25 × 7–10 cm, thickly papery, both surfaces glabrous, midvein abaxially conspicuously raised and adaxially impressed, base broadly cuneate to subrounded, apex acuminate. Pseudopanicles axillary, copious, 50–65 cm, glabrous; branches 5–10 cm; branchlet nodes close together, with 1 flower. Pedicel ca. 2 mm. Flower ca. 6.5 mm. Calyx broadly campanulate, ca. 2.5 × 3 mm, glabrous, apex subtruncate. Corolla standard erect, orbicular, ca. 7.5 mm in diam., without basal calluses. Legume woody, 9–11 × ca. 3.5 cm, thin, smooth, glabrous, without reticulate veins; both sutures with a 3–5 mm wide wing. Seed 1 per legume. Fl. unknown, fr. Jan.

Open forests on mountain slopes; 600–1200 m. Guangxi, Yunnan [N Myanmar].

密锥花鱼藤 mi zhui hua yu teng

*Milletia thyrsiflora* Bentham in Miquel, Pl. Jungh. 249. 1852; *Derris thyrsiflora* (Bentham) Bentham.

Lianas or scandent shrubs. Branchlets glabrous or very sparsely pilose. Leaves 5–9-foliolate; rachis 30–45 cm, including petiole 8–14 cm; leaflet blades oblong to oblong-lanceolate, 10–15 × 3.5–7 cm, subleathery, both surfaces glabrous, secondary veins 5–7 on each side of midvein, base rounded, apex shortly acuminate to caudate. Pseudopanicles axillary or terminal, narrowly pyramidal, 12–35 cm, compact, brown or reddish pilose; branches numerous, ascending or spreading; branchlet nodes with several close but not fascicled flowers on a short branchlet. Pedicel very short. Flowers ca. 8 mm. Calyx campanulate, ca. 3 mm, very sparsely pilose, apex truncate or obscurely deltoid toothed. Corolla whitish to purplish red, 8–10 mm; standard curved upward, without basal calluses. Stamens monadelphous; anthers orbicular, ca. 7.5 mm in diam., without basal calluses. Legume oblong, 10–15 × 3.5 cm, glabrous, conspicuously veined, base narrowed, apex shortly acuminate; both sutures with a 5–8 mm wide wing. Seed 1 per legume, ovate-reniform, ca. 2.5 × 1.3 cm. Fl. Jan–Jul, fr. Nov–Dec.

- Forests, low-elevation mountains. Guangdong (Dinghu Shan).


肿荚豆属 zhong jia dou shu

Wei Zhi (韦直); Les Pedley

Trees, evergreen. Stipules and stipels absent. Leaves imparipinnate; petiole and petiolules often basally thickened; leaflet blades (sub)opposite. Inflorescences terminal and with racemes in groups of 2–5 in axils of leaves at tips of branches; bracts longer than corresponding buds and covering them, soon caducous. Calyx cup-shaped; teeth inconspicuous. Petals ± equal, all long clawed, glabrous; standard curved upward, without basal calluses; wings partly fused to keel. Stamens monadelphous; anthers orbicular, dehiscing by a short slit at tip. Ovary stipitate or subsessile, with trichomes, with 2–6 ovules; style subulate, short. Legume inflated, not winged, dehiscent; valves woody, vacuous inside. Seeds 1(or 2), compressed globose, shiny; hilum round, ca. 3 mm in diam.

Five species: S China, Thailand, Vietnam; two species in China.

1a. Branchlets and leaves glabrous; inflorescences tawny pubescent; petiolules blackened when dry; leaflet blades broadly elliptic-ovate, abaxially glaucous, base tapering to petiolule ................................................................. 1. *A. glaucum*

1b. Branchlets, leaves, and inflorescences with yellowish trichomes; petiolules with greyish trichomes; leaflet blades oblong, abaxially densely appressed sericeous, base rounded, asymmetric ........................................................................ 2. *A. harmandii*


粉叶肿荚豆 fen ye zhong jia dou


Scrub by streams in mountains; low elevations but to ca. 2000 m in Yunnan. Guangdong, S Guangxi, Hainan, S Yunnan [India, Indonesia, Laos, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand, Vietnam; Pacific islands].

3. **Aganope dinghuensis** (P. Y. Chen) T. C. Chen & Pedley, comb. nov.

鼎湖鱼藤 ding hu yu teng


Lianas. Branches brownish when dry, sparsely rust-colored pubescent, scattered with brownish oblong to orbicular lenticels. Leaves 9-foliolate; rachis 35–50 cm, including petiole 10–12 cm; leaflet blades oblong to broadly oblong-ovate, 10–18 × 7–11 cm, thickly papery, both surfaces glabrous, midvein abaxially conspicuously raised and adaxially slightly impressed, secondary veins 6–8 on each side of midvein, base rounded, apex shortly and obtusely acuminate. Pseudopanicles axillary, ca. 20 cm, densely brownish pubescent, only basal part of rachis with few branches. Pedicel 3–5 mm, densely brownish pubescent. Flowers 1.5–1.7 cm. Calyx broadly campanulate, ca. 6 × 8 mm, densely brownish pubescent; teeth obscure. Corolla white, 1.5–1.7 cm; standard orbicular, without basal calluses. Ovary puberulent. Legume ligulate-oblong, 10–15 × 3–3.5 cm, glabrous, conspicuously veined, base narrowed, apex shortly acuminate; both sutures with a 5–8 mm wide wing. Seed 1 per legume, reniform, ca. 2.5 × 1.3 cm. Fl. Jan–Jul, fr. Nov–Dec.

- Forests, low-elevation mountains. Guangdong (Dinghu Shan).
2 flowers; peduncle variable in length. Pedicel ca. 3 mm, slender. Flower ca. 1 cm. Calyx ca. 5 × 2.5 mm. Corolla white, ca. 1 cm; standard suborbicular, base tapering into a long claw. Ovary linear, with trichomes, with 2–4 ovules. Legume oblong-rhomboid. Fl. Mar–Aug, fr. Jun–Aug.

Seasonal rain forests; 500–1300 m. S Yunnan [Thailand].


肿荚豆 zhong jia dou

Trees, to 10 m tall. Branchlets yellowish velutinous, with scattered minute lenticels. Leaves 7- or 9(–13)-foliolate; rachis 30–40 cm, including petiole 6–8 cm; petiolules 6–9 mm, grayish velutinous; leaflet blades oblong, 11–18 × 3–5 cm, leathery, abaxially densely sericeous, adaxially shiny, secondary veins 5–8 on each side of midvein, base rounded and asymmetric, apex acute. Racemes axillary, usually 2–5 congested apically on branches to form a large panicle, 7–15 cm, velutinous. Pedicel ca. 3 mm, slender. Flowers ca. 8 mm. Calyx ca. 4 × 3 cm, puberulent. Corolla pale pink; standard obcordate. Ovary with trichomes, with 2 ovules. Legume oblong-rhomboid, ca. 8 × 3.5 cm, densely yellow velutinous, apex shortly beaked. Seed chestnut-brown, ca. 1.8 × 1.4 cm, shiny. Fl. Mar–Oct, fr. Jul–Nov.

Mixed woodlands in valleys; 200–1000 m. W Guangxi, SW Guizhou, SE and SW Yunnan [Vietnam].


猪腰豆属 zhu yao dou shu

Wei Zhi (韦直); Les Pedley

Shrubs, scandent. Stipules caducous. Leaves imparipinnate; stipels present; leaflets opposite. Inflorescences axillary or cauliflorous racemes or elongated panicles, with large imbricate-tailed sericeous bracts covering flower buds, caducous. Bracteoles minute. Calyx shortly 5-toothed. Corolla standard basally with 2 curved laminar calluses; wings and keels equal in length, both clawed. Stamens diadelphous; vexillary stamen free from other 9. Ovary stipitate, with trichomes, with 2 ovules. Legume inflated, tardily dehiscent; valves thickly woody. Seeds 1[or 2] per legume, ellipsoid, shiny; hilum ca. 1/2 as long as seed.

Three species: SW China, Myanmar, Thailand; one species in China.


猪腰豆 zhu yao dou

Shrubs, scandent. Bark yellow, split longitudinally. Stems to 20 m, terete, sericeous and scarlet strigose when young, glabrescent. Stipules narrowly triangular, ca. 6 mm. Leaves (13–)17- or 19-foliolate; rachis 25–35 cm, including petiole 5–8 cm; stipels filiform, caducous; petiolules 3–4 mm; leaflet blades oblong, 6–10 × 2–3.5 cm, papery or leathery, both surfaces silky pubescent but glabrescent or abaxially densely bright brown hirsute and adaxially rough, secondary veins 7–9 on each side of midvein, base rounded and asymmetric. Panicles cauliflorous, rough with scars of fallen bracts; bracts ca. 2 cm, membranous, sericeous. Pedicel ca. 2 cm. Flowers ca. 2.5 cm. Calyx cup-shaped, with trichomes, adaxial pair of teeth connate. Corolla lilac, abaxially puberulent. Legume spindle-shaped, ca. 17 × 9 cm, velutinous, indehiscent, persistently hanging on trunk. Seed 1 per legume, dark brown, reniform, ca. 8 × 4.5 cm, smooth, shiny; hilum 3.5–4 cm. Fl. Jul–Aug, fr. Sep–Nov.

Sparse thickets, evergreen broad-leaved forest margins; 200–1300 m. Guangxi, S Yunnan [Laos, Myanmar, Thailand, Vietnam].

1a. Leaflet blades papery, both surfaces silky pubescent but glabrescent ............................. 1a. var. filipes

1b. Leaflet blades leathery, abaxially densely bright brown hirsute, adaxially rough ...................................... 1b. var. tomentosa

1a. Afgekia filipes var. filipes

猪腰豆(原变种) zhu yao dou (yuan bian zhong)


Leaflet blades papery, both surfaces silky pubescent but glabrescent.

Sparse thickets; 200–1300 m. W Guangxi, S Yunnan [Laos, Myanmar, Thailand, Vietnam].


毛叶猪腰豆 mao ye zhu yao dou


Leaf rachises, petiolules, and leaflet blades abaxially densely bright brown hirsute. Leaflet blades leathery, adaxially rough and dark green.

Evergreen broad-leaved forest margins; 1100–1300 m. Guangxi, S Yunnan.

70. SARCODUM Loureiro, Fl. Cochinch. 2: 425, 461. 1790.

耀花豆属 yao hua dou shu

Sun Hang (孙航); Les Pedley

Lianas. Apical vegetative bud dormant during anthesis and fruit set. Stipules and stipels persistent. Racemes in axil of terminal
leaves forming a leafy panicle; bracts longer than corresponding flowers, caducous. Bracteoles present. Calyx campanulate, subtrun-
cate, bilabiata. Corolla standard reflexed at base, calluses absent; wings and keel ≠ equally long; wings free from keel. Stamens dia-
delphous, vexillary staminal filament distinct from other 9. Ovary glabrous, with 9–12 ovules. Legume linear, cylindric, raised over
seeds, dehiscing along adaxial suture; exocarp fleshy but papery when dry; endocarp thin, leathery, lining seed cavity. Seeds ellip-
soid; hilum rather elongated, surrounded by prominent rim; radicle folded.

Three species: SE Asia, Pacific islands (Solomon Islands); one species in China.

*Sarcodum* is here recognized as a genus distinct from *Clianthus* Solander ex Lindley. *Clianthus* is now considered to be a genus with one or two
species restricted to New Zealand, and the Australian formerly recognized in *Clianthus* are referred to *Swainsona* Salisbury.

1. **Sarcodum scandens** Loureiro, Fl. Cochinch. 2: 462. 1790.

干花豆属

*Clianthus scandens* (Loureiro) Merril.

Lianas. Branchlets villous with long spreading trichomes, glabrescent. Stipules 1–1.5 cm. Leaves 19–35-foliolate; rachis
10–25 cm, including petiole 1.5–3 cm; stipels 4–5 mm; leaf blade oblong, 2.3–3.3 × 0.7–1.2 cm, papery, abaxially pubes-
cent with appressed trichomes, adaxially sprinkled with whitish appressed trichomes, base rounded, apex shortly obtuse and mucronate. Racemes 5–10 cm; bracts lanceolate-caudate, slightly keeled, 1.6–2 cm. Pedicel 7–10 mm; bracteoles 2–4
mm. Calyx 3–4 mm, with dense brown appressed trichomes. Corolla purplish; standard elliptic, 1.5–1.7 × ca. 1.1 cm, base
subcordate, apex rounded. Ovary linear, ca. 1 cm, stipitate, with 6–10 ovules, glabrous. Legume 7–9 cm × 4–9 mm, 6–10-seeded, slightly constricted between seeds; stipe ca. 5 mm. Seeds bright blackish, ca. 6 × 3.5 mm; hilum broadly ovoid. Fl.

Valleys, escarpment forests, climbing in trees. C and S Hainan [Indonesia (Maluku Islands), Philippines, Vietnam].


干花豆

*Wei Zhi* (韦直); Les Pedley

*Imbralyx* R. Geesink.

Shrubs. Supra-axillary buds covered with many conspicuous subulate cataphylls. Stipules present, persistent or caducous.
Leaves spirally arranged, imparipinnate; stipels filiform in Chinese species, persistent; leaflets opposite, rather larger pairs at middle
of leaf rachis, basal 1 or 2 pairs rather smaller. Pseudoracemes cauliflorous or axillary on branchlets of previous year, Bracts shorter
than corresponding flower buds. Calyx indistinctly 5-toothed. Petals clawed, sericeous at basal and apical margins; standard reflexed
at base, without basal calluses. Stamens diadelphous; vexillary stamen free from other 9. Ovary sessile, with trichomes, with 2(or 3)
ovules. Legume clavate, flat, thinly woody, without wings. Seeds 1 or 2 per legume, lenticular, smooth; radicle folded.

Eight species: SE Asia; two species (both endemic) in China.

1a. Stipules falcate, persistent; leaves (19–)23- or 25-foliolate; leaflet blades oblong, 4–12 × 2.5–3 cm;

pejoraremas 15–40 cm; flowers 1.1–1.3 cm; legume 7–10 × 2–2.5 cm ......................................................... 1. *F. cauliflora*

1b. Stipules triangular-lanceolate, caducous; leaves 17–21-foliolate; leaflet blades ovate-lanceolate,

2.5–6 × ca. 1.5 cm; pseudoracemes 8–13 cm; flowers 0.8–1 cm; legume 7–9 cm × 4–9 mm, 6–10-seeded, slightly constricted between seeds; stipe ca. 5 mm. Seeds bright blackish, ca. 6 × 3.5 mm; hilum broadly ovoid. Fl.

Valleys, escarpment forests, climbing in trees. C and S Hainan [Indonesia (Maluku Islands), Philippines, Vietnam].


干花豆

*Milletia* cauliflora (Hemsley) Gagnepain.

Shrubs, 2–4 m tall. Stems rusty tomentose, glabrescent, rough with round traces of fallen leaves. Buds covered with
many subulate 1.3–1.9 cm cataphylls. Stipules falcate, 2–2.5

cm, persistent. Leaves (19–)23- or 25-foliolate; rachis to 50 cm,
including petiole ca. 1.5 mm; leaflet blades oblong to ovate-oblong, 4–12 × 2.5–3 cm, abaxially densely pubescent, base rounded, apex shortly acuminate. Pseudoracemes 15–40 cm; flowers 1.1–1.3 cm; legume 7–9 cm × 4–9 mm, 6–10-seeded, slightly constricted between seeds; stipe ca. 5 mm. Seeds bright blackish, ca. 6 × 3.5 mm; hilum broadly ovoid. Fl.

Valleys, escarpment forests, climbing in trees. C and S Hainan [Indonesia (Maluku Islands), Philippines, Vietnam].


小叶干花豆

Shrubs, to 2 m tall, erect. Stems yellowish tomentose. Stipules triangular-lanceolate, caducous. Leaves gathered at top
of branchlets, 17–21-foliolate; rachis 15–20 cm, including petiole 10 cm; stipels subulate 2–2.5 cm; leaflet blades oblong to ovate-oblong, 4–12 × 2.5–3 cm, abaxially densely pubescent, base rounded, apex acuminate. Pseudoracemes 15–40 cm; thick, straight, usually 2 or 3 together; branchlet nodes wartlike, with 3–6(–10) flowers; bracts and bracteoles minute. Flowers 1.1–1.3 cm. Corolla roseate to purple. Legume clavate, 7–10 × 2–2.5 cm, glabrescent, apex shortly beaked. Seeds 1 or 2 per legume, dark brown, orbicular, ca. 1


- Rocky slopes in valleys; 800–2000 m. Guangxi, Guizhou, Yun-

nan.

Trees, shrubs, or lianas. Stipules present, persistent or caducous. Leaves imparipinnate; stipels present or absent; leaflet blades opposite or rarely subalternate. Inflorescence a pseudoraceme, unbranched (but branched in *Milletta ichthyochtona*), racemis with lateral flowering branchlets reduced to knobs or short spur at each node; flowers 2–5 in a clusters or fascicles per node; bracts and bracteoles present. Calyx tube broad, shortly 5-toothed; adaxial 2 teeth ± connate. Corolla standard large, with or without basal calyx side, surrounding and clasping hilum as a short ringlike aril. Wings perpendicular to abaxial or both sutures. Seeds 1 to several per legume, lenticular or globose; funicle fleshy, swelling at adaxial side, surrounding and clasping hilum as a short ringlike aril.

About 100 species: subtropical and tropical Africa, Asia, and Australia; 18 species (six endemic) in China.

Many species are used in China as medicinal drugs, insecticide, or fish poison. A few species are cultivated as ornamentals.

1a. Petals outside glabrous (but not always explicitly stated in description; corolla unknown in *M. entadoides*).

1b. Petals outside pubescent.

2a. Leaf rachis and leaflet blades glabrous.

2b. Leaf rachis and leaflet blades at least abaxially with trichomes.

3a. Leaflets subalternate, blades obliquely ovate, base asymmetric; legume stipitate ......................... 1. *M. ichthyochtona*

3b. Leaflets opposite, blades oblong-lanceolate, oblanceolate, or oblong, base symmetric; legume sessile.

4a. Leaflet blades 12–25 cm, secondary veins 11–13 on each side of midvein; seeds thickly lenticular; trees ................................................................................................................................. 3. *M. leptobotrya*

4b. Leaflet blades 9–12 cm, secondary veins 9–12 on each side of midvein; seeds reniform; lianas ....... 13. *M. entadoides*

5a. Leaflet blades abaxially yellow tomentose; pseudoracemes erect ................. 4. *M. erythrocalyx*

5b. Leaflet blades abaxially scarlet strigose on midvein and margins; pseudoracemes pendulous ........................................... 5. *M. leucantha*

6a. Leaflet blade secondary veins 7–10 on each side of midvein; trees or erect shrubs.

6b. Leaflet blade secondary veins 13–17 on each side of midvein; lianas ........................ 10. *M. pulchra*

7a. Leaflet blades abaxially scarlet to orange; pseudoracemes erect; trees ...................... 17. *M. velutina*

7b. Leaflet blades abaxially scarlet to orange; pseudoracemes pendulous; trees or shrubs

8a. Stipels absent.

8b. Stipels present.

9a. Leaflet blades broadly elliptic, membranous, both surfaces pubescent, apex acute; legume flat ........ 6. *M. pubinervis*

9b. Leaflet blades obloneelliptic to lanceolate-lanceolate or lanceolate to oblone-lanceolate, glabrous or sparsely pilose adaxially, apex caudate; legume inflated.

10a. Leaflet blades obloneelliptic to lanceolate-lanceolate, papery, abaxially brown tomentose, adaxially shiny and sparsely pilose .......................................................... 11. *M. sapindifolia*

10b. Leaflet blades obloneelliptic to lanceolate-lanceolate, subleathery, abaxially sparsely strigose and adaxially glabrous ............................................................... 7. *M. austroyunnanensis*


11b. Leaflets 7–13 or 15.

12a. Stipules ca. 8 mm, persistent; branchlets reddish brown tomentose ........................................... 8. *M. cubittii*

12b. Stipules 1–3 mm, caducous; branchlets yellow tomentose or grayish yellow pubescent.

13a. Pseudoracemes 20–25 cm; flowers 1.3–1.6 cm; corolla white or lilac; legume tomentose; trees 8–15 m tall .......................................................... 16. *M. velutina*

13b. Pseudoracemes 6–15 cm; flowers 0.9–1.2 cm; corolla pale red to scarlet; legume gray pubescent but glabrescent; erect shrubs or trees 3–8 m tall ........................................... 17. *M. pulchra*

14a. Leaf rachis 15–20 cm; leaflet blades 4–5.5 cm ................. 18. *M. oraria*

14b. Leaf rachis 25–40 cm; leaflet blades 7–18 cm.

15a. Leaflets 5; stems slender, without lenticels ................................................................. 9. *M. lantsangensis*

15b. Leaflets 7–13; stems thick, with scattered lenticels.

16a. Leaflet blade secondary veins 13–17 on each side of midvein; lianas ................. 10. *M. pachyloba*

16b. Leaflet blade secondary veins 7–10 on each side of midvein; trees or erect shrubs.
17a. Leaflet blades abaxially glabrescent; inflorescences longer than subtending leaf; flowers ca. 1.8 cm; trees .......................................................... 14. M. macrostachya

17b. Leaflet blades abaxially densely brown pubescent especially on veins; inflorescences shorter than subtending leaf; flowers ca. 1 cm; erect shrubs .......... 15. M. griffithii

1. Millettia ichthyochtona Drake, J. Bot. (Morot) 5: 188. 1891.

Trees, 10–15 m tall. Branchlets flexuous, with longitudinal ridges, glabrous. Buds rounded; scales 6–8, broadly ovate. Leaves 5–9-foliolate; rachis 12–17 cm, including petiole 2–3 cm; leaflet blades subalternate, obliquely ovate, 5–8 × 1.5–2.5 cm, papery, base cuneate and asymmetric, apex acuminate. Pseudoracemes axillary, main axis often repeatedly branched, with white crisped trichomes. Pedicel 1–1.5 cm, slender. Flowers ca. 1.5 cm. Calyx 5–6 mm; teeth triangular. Corolla white; standard broadly ovate, without basal calluses. Stamens monadelphous. Ovary sericeous, with 3–5 ovules. Legume linear-oblong, 7–20 × 3.5–4 cm, flat, base obtuse, apex beaked; valves leathery; both sutures obscure. Seeds 1–3 per legume, pale yellow, thickly lenticular, shiny. Fl. Apr, fr. Oct-Jan.

Woodlands on slopes; 300–1000 m. S Yunnan [Laos, Vietnam].

*Millettia leptobotrya* is represented in China by the typical variety. Another variety, *Millettia leptobotrya* var. *macrocarpa* P. K. Lôc, is endemic to Vietnam.


Four-winged bean si chi ya dou

Trees, 15–26 m tall. Branchlets grayish yellow, rough, yellowish tomentose, glabrescent. Leaves 7–11(or 13)-foliolate; rachis 15–30 cm, including petiole 2–3 cm; stipels absent; leaflet blades elliptic-obovate, 8–13 × 2.5–3.5 cm, papery, abaxially yellow tomentose, base rounded to subcordate, apex acuminate. Pseudoracemes axillary near apex of branchlets, 6–7 cm, densely dark brown glabrous; rachis nodes with 2–5 flowers. Pedicel ca. 7 mm. Flowers ca. 0.9–1.1 cm. Calyx 2–2.5 mm; teeth shortly triangular. Corolla lilac; standard broadly ovate, basally thickened and truncate, ciliate. Corolla lilac; standard glabrous, basally with 2 minute calluses, base rounded. Ovary villous, with 4 or 5 ovules. Legume linear-oblong, 9–10 × ca. 2 cm, flat, slightly curved, brown tomentose when young, glabrescent, base tapered; sutures thickened; valves woody, spirally twisted. Seeds 2 or 3 per legume, chestnut-brown, lenticular, ca. 1.3 × 1 cm, smooth. Fl. Mar-Jun, fr. year-round.

Evergreen broad-leaved forests; 600–700 m. S Yunnan [Cambodia, Laos, Thailand, Vietnam].


Red萼崖豆 hong e ya dou

Trees. Bark gray. Branchlets rusty strigose, glabrescent, spotted lenticels prominent. Leaves 7–11-foliolate; rachis ca. 25 cm, including petiole ca. 8 cm; leaflet blades ovate-lanceolate to elliptic-lanceolate, 3–6 × 1.5–2 cm, papery, abaxially scarlet strigose on midvein and margins, adaxially glabrous and shiny, base narrowly cordate, apex caudate. Pseudoracemes axillary near apex of branchlets, 6–7 cm, densely dark brown glabrous; rachis nodes with 2 or 3 flowers. Pedicel ca. 3 mm. Flowers ca. 9 mm. Calyx dark red, ca. 3 mm, with sparse trichomes; teeth truncate, ciliate. Corolla lilac; standard glabrous, basally with 2 minute calluses, base rounded. Ovary villous, with 4 or 5 ovules. Legume linear-oblong, 9–10 × ca. 2 cm, flat, slightly curved, brown tomentose when young, glabrescent, base tapered; sutures thickened; valves woody, spirally twisted. Seeds 2 or 3 per legume, chestnut-brown, lenticular, ca. 1.3 × 1 cm, smooth. Fl. Mar-Jun, fr. year-round.

Evergreen broad-leaved forests; 600–700 m. S Yunnan [Cambodia, Laos, Thailand, Vietnam].


红萼崖豆 hong e ya dou

Trees. Bark gray. Branchlets rusty strigose, glabrescent, spotted lenticels prominent. Leaves 7–11-foliolate; rachis ca. 25 cm, including petiole ca. 8 cm; leaflet blades ovate-lanceolate to elliptic-lanceolate, 3–6 × 1.5–2 cm, papery, abaxially scarlet strigose on midvein and margins, adaxially glabrous and shiny, base narrowly cordate, apex caudate. Pseudoracemes axillary near apex of branchlets, 6–7 cm, densely dark brown strigose; rachis nodes with 2–5 flowers. Pedicel ca. 2 mm. Flowers 1.1–1.3 cm. Calyx ca. 5 mm, pubescent. Corolla white; standard, oribacular, without basal calluses. Stamens monadelphous. Ovary sericeous, with 3–5 ovules. Legume linear-oblong, 7–20 × 3.5–4 cm, flat, base obtuse, apex beaked; valves leathery; both sutures obscure. Seeds 1–3 per legume, pale yellow, thickly lenticular, shiny. Fl. Apr, fr. Oct-Jan.

Woodlands on slopes; 300–1000 m. S Yunnan [Laos, Vietnam].


四翅崖豆 chui xu ya dou

*Millettia pendula* Bentham ex Baker, nom. illeg. superfl.

Trees, 6–7 m tall. Bark gray. Branchlets smooth, striate, rusty pilose when young, gradually glabrescent, scattered with minute, smooth lenticels. Leaves (5 or)7- 9-foliolate; rachis 15–50 cm, including petiole 4.5–14 cm, rusty pilose; stipels aciculate, ca. 1 mm, caducous; petiolules densely pubescent, 5–6 mm; leaflet blades lanceolate to oblong, 8–30 × 2.5–6 cm, papery, abaxially appressed puberulent, pilose along midvein, adaxially sparsely appressed puberulent except along midvein, secondary veins 6–10 on each side of midvein, base rounded or broadly cuneate, apex caudate or long caudate. Pseudoracemes axillary or terminal, pendulous, slender, (15–)25–45 cm, brown pubescent; peduncle 1–4 cm, densely rusty scabrous; rachis nodes with 2–5 flowers. Pedicel 1–3 mm. Flowers 1.1–1.3 cm.
Calyx 5–6 mm, densely brown pubescent; teeth shorter than tube, apex cuspidate. Corolla white; standard broadly orbicular, glabrous, base auriculate, with 2 minute calluses; claw 2.5 mm. Ovary ca. 6 mm, densely sericeous, with (3 or)4 ovules. Legume oblong, flat, 10–17 × 2.7–3.5 cm, woody, brown tomentose, apex obtuse, with a beak. Seeds (3 or)4 per legume, orbicular, ca. 1.5 × 6 mm. Fl. Mar–Apr, fr. Jun–Nov.

Sparse woodlands; ca. 1100 m. S Yunnan (Jiangcheng) [Laos, Myanmar, Thailand].

This species was first recorded from China by Y. Y. Qian (Acta Phytotax. Sin. 39: 464–465. 2001, as Millettia pendula).


薄叶崖豆 bao ye ya dou

Trees, to 8 m tall. Bark gray, rough. Branchlets pubescent, glabrescent. Leaves 7–11-foliolate; rachis 20–25 cm, including petiole 8–12 cm; stipels absent; leaflet blades broadly elliptic, 6–14 × 3–5 mm, membranous, both surfaces appressed pubescent but adaxially sparsely so, base broadly cuneate, apex acute. Pedicel filiform, 4–5 mm. Flowers ca. 1 cm. Calyx ca. 3 mm, densely brown pubescent. Corolla pale red; standard orbicular, petiole 8–12 cm; stipels absent; leaflet blades broadly elliptic, 6–14 × 3–5 mm, membranous, both surfaces appressed pubescent but adaxially sparsely so, base broadly cuneate, apex acute. Ovary pubescent, with 2–6 ovules. Pedicule linear, 9–12 × 1.3–2 cm, flat, yellow tomentose, base rounded, apex abruptly beaked; valves thinly leathery, twisted. Seeds 1–3 per legume, dark brown, oblate; when immature but unknown when mature. Fl. Apr–Aug, fr. Sep.

Thickets at forest margins; 500–800 m. S Yunnan [Laos, Myanmar, Thailand, Vietnam].


滇南崖豆 dian nan ya dou

Trees, 4–6 m tall. Bark gray, rough. Branchlets pubescent. Leaves 7–9-foliolate; rachis 20–40 cm, including petiole 3.5–8 cm; stipels absent; leaflet blades lanceolate to oblong-lanceolate, 4–20 × 1.3–5 cm, subleathery, abaxially sparsely striate, adaxially glabrous, secondary veins 7–11 on each side of midvein, base cuneate, apex acuminate. Peduncles axillary, 30–50 cm, slender; rachis nodes with 3 or 4 clustered flowers densely gathered at apical part; peduncle 6–10 cm. Pedicel ca. 1 mm. Flowers ca. 8 mm. Calyx ca. 6 × 4 mm, densely hirsute; teeth longer than tube, adaxial pair connate. Corolla pale pink; standard broadly orbicular, with 3–7 flowers clustered on a 4–5 mm spur. Pedicel 2–3 mm. Flowers ca. 2.2 cm, including petiole 7–9 cm; stipels present; leaflet blades oblong-lanceolate, 8–11 × 2.2–3 cm, subleathery, both surfaces appressed brown pubescent on midvein, base rounded and asymmetric, apex acuminate. Pseudoracemes axillary, gathered apically on branchlets, 15–25 cm; rachis nodes laxly arranged, with 2–4 flowers. Pedicel ca. 1 cm. Flowers ca. 2.2 cm. Calyx 6–7 mm. Corolla purple; standard orbicular, outside densely puberulent, base auriculate and with 2 columnar calluses near claw. Ovary densely red villous, with numerous ovules. Legume linear-oblong, 18–22 × 2.5–3 cm, flat, brown tomentose; valves woody. Seeds ca. 5 per legume, mature ones unknown. Fl. Apr–Jun, fr. Jan.

Trees by river margins; 300–1000 m. S Yunnan [Myanmar, Vietnam].


红河崖豆 hong he ya dou

Trees, 8–10 m tall. Branchlets ridged, reddish brown tomentose, with evident leaf traces. Stipules subulate, ca. 8 mm, sturdy and straight, persistent. Leaves 13–17-foliolate; rachis 25–35 cm, including petiole 7–9 cm; stipels present; leaflet blades oblong-lanceolate, 8–11 × 2.2–3 cm, subleathery, both surfaces appressed brown pubescent on midvein, base rounded and asymmetric, apex acuminate. Pseudoracemes axillary, gathered apically on branchlets, 15–25 cm; rachis nodes laxly arranged, with 2–4 flowers. Pedicel ca. 1 cm. Flowers ca. 2.2 cm. Calyx 6–7 mm. Corolla purple; standard orbicular, outside densely puberulent, base auriculate and with 2 columnar calluses near claw. Ovary densely red villous, with numerous ovules. Legume linear-oblong, 18–22 × 2.5–3 cm, flat, brown tomentose; valves woody. Seeds ca. 5 per legume, mature ones unknown. Fl. Apr–Jun, fr. Jan.
Taiwan, SW Xizang, Yunnan, S Zhejiang [Bangladesh, Bhutan, India, Laos, Myanmar, Nepal, Thailand, Vietnam].

Evergreen broad-leaved forests in valleys; below 1500 m. Guangdong, Guangxi, SW Guizhou, Hainan, SW Hunan, Yunnan [Vietnam].

*Millettia pachyloba* is represented in China by the typical variety. Another variety, *Millettia pachyloba var. spireana* (Gagnepain) P. K. Lôc, occurs in Cambodia, Laos, Thailand, and Vietnam.


*wu huan zi ye ya dou teng*

Lianas. Branchlets yellow tomentose. Leaves 7–11-foliolate; rachis 25–30 cm, including petiole 3.5–5.5 cm; stipels absent; leaflet blades oblong-elliptic to lanceolate-elliptic, 6.5–11 × 2.8–3.5 cm, papery, abaxially brown tomentose, adaxially shiny and sparsely pilose, secondary veins 9–12 on each side of midvein, base broadly cuneate, apex caudate. Pseudoracemes axillary near apex of branchlets, 15–27 cm, yellow tomentose; rachis nodes with 3–5 flowers clustered on a 2–3 mm spur. Pedicel 2–3 mm. Flowers ca. 1.2 cm. Calyx ca. 5 mm. Corolla white; standard obovate, glabrous or ciliate on apexmargin, without basal calluses. Ovary tomentose, with numerous ovules. Legume (immature) oblong, inflated, densely yellow villous, base tapering to stipe, apex beaked. Mature seeds unknown. Fl. Jun–Jul, fr. Jul–Aug.

- Thickets on slopes; 1100–1200 m. Guangxi, Guizhou.


*hou guo ya dou teng*

*Millettia dunni* Merrill; *M. fooningensis* Hu; *M. taiwaniana* (Hayata) Hayata; *Pongamia taiwaniana* Hayata; *Whitfordiodendron taiwaniana* (Hayata) Ohwi.

Lianas, to 15 m. Branchlets brown, yellow tomentose when young, glabrescent, scattered with brown lenticels. Leaves 13–17-foliolate; rachis 30–50 cm, including petiole 7–9 cm; leaflet blades elliptic-oblong to lanceolate-oblong, 10–18 × 3.5–4.5 cm, papery, abaxially brown appressed sericeous, adaxially flat and glabrous, base cuneate to rounded, apex acute. Pseudoracemes with 2–6 branches beneath new stems, 15–30 cm, brown tomentose; rachis nodes with 2–5 flowers clustered on a 1–3 mm spur. Pedicel 6–8 mm. Flowers 2.1–2.3 cm. Calyx ca. 6 mm. Corolla lilac; standard without basal calluses, outside sericeous. Ovary tomentose, with 5–7 ovules. Legume (immature) oblong or when 1-seeded ovoid, 5–25 × ca. 4 cm, inflated, densely covered with pale yellow warts, glabrescent; valves thick, woody. Seeds 1–5 per legume, dark brown, reniform, 2.5–3.5 × ca. 2 cm. Fl. Apr–Jun, fr. Jul–Nov. 2n = 22.

Evergreen broad-leaved forests in valleys; 100–2000 m. Fujian, Guangdong, Guangxi, Guizhou, SW Hubei, Hunan, S Jiangxi, Sichuan, Taiwan, SW Xizang, Yunnan, S Zhejiang [Bangladesh, Bhutan, India, Laos, Myanmar, Nepal, Thailand, Vietnam].

The seeds and roots are ground into a powder that is used as an insecticide. The bark fiber is used for making rough ropes.


*ke teng zi ya dou teng*

Lianas. Branchlets yellow, trailing, glabrous, with dense prominent tiny lenticels. Leaves 7–13-foliolate; rachis 20–30 cm, including petiole 8–10 cm; leaflet blades ob lanceolate to oblong, 9–12 × 2–3 cm, papery, glabrous, secondary veins 9–12 on each side of midvein, base broadly cuneate, apex caudate. Pseudoracemes axillary or cauliflorous, 12–15 cm, glabrescent; rachis nodes with 2 or 3 clustered flowers. Pedicel ca. 5 mm. Calyx ca. 4 × 5 mm; teeth obscure. Corolla unknown. Legume yellow, linear-oblong, ca. 20 × 4 cm, inflated, woody, glabrous, contracted between seeds, both ends rounded; sutures thickened. Seeds 2–4 per legume, dark brown, reniform, ca. 3 × 2.6 cm. Fl. Apr, fr. Aug–Nov.

- Thickets on upland slopes; 1500–2600 m. SW Yunnan.


*da sui ya dou*

*Millettia macrostachya var. multifoliolata* Y. Y. Qian.

Trees, to 10 m tall. Branchlets dark brown, ridged, glabrous, scattered with fine lenticels. Leaves 7–11(or 13)-foliolate; rachis 30–40 cm, including petiole 8–9 cm; stipels present; leaflet blades broadly oblong to obovate-elliptic, 8–16 × 4–8 cm, papery, both surfaces glabrescent, secondary veins 8–10 on each side of midvein, base broadly cuneate and slightly asymmetric, apex acute. Pseudoracemes axillary, 35–50 cm, longer than subtending leaf, thick, straight, slightly puberulent; rachis nodes ± whorled with 3–7 flowers clustered on a 2–4 mm spur. Pedicel 4–5 mm, brown puberulent. Flowers ca. 1.8 cm. Calyx ca. 7 mm. Corolla pale red to lilac; standard orbicular, without basal calluses, outside puberulent, base auriculate, apex purple striped. Ovary with trichomes, with numerous ovules. Legume linear, 8–22 × ca. 1.5 cm, leathery, apex beaked; sutures thickened. Seeds 5–8 per legume, olive-green, ellipsoid, ca. 1.5 × 8 mm. Fl. Mar, fr. Jun–Aug.

Thickets on slopes; 800–900 m. S Yunnan [Myanmar].

This species occasionally is cultivated in courtyards.


*meng lian ya dou*

Shrubs, erect. Branchlets grayish brown, yellow pubescent when young, glabrescent, scattered with lenticels. Leaves 7–13-foliolate; rachis 25–40 cm, including petiole 4–8 cm; stipels present; leaflet blades oblong-lanceolate, 7–16 × 4–5 cm, papery, abaxially densely brown pubescent especially on veins, adaxially glabrescent, secondary veins 8–10 on each side of midvein, base cuneate, apex acute. Pseudoracemes axillary, gathered apically on branchlets, ca. 20 cm, shorter than subtending leaf; rachis nodes sparse, with 1–3 flowers clustered on a short spur. Pedicel 1.5–2 mm, finely puberulent. Flowers ca. 1
cm. Corolla pale pink; standard orbicular, outside apically puberulent. Ovary stipitate, with trichomes, with 3 ovules. Legume linear, 9–10 × ca. 1.5 cm, flat, appressed cream-colored pubescent, apex rounded and with a short beak; valves thinly leathery, twisted; suture conspicuously thickened. Seeds ca. 3 per legume, oblate when immature, unknown when mature. Fl. May–Jul, fr. Aug–Nov.

Sparse woodlands on slopes, near villages; ca. 1100 m. S Yunnan [Myanmar].


绒毛崖豆 rong mao ya dou

*Millettia yunnanensis* Pampanini var. *robusta* Pampanini.

Trees, 8–15 m tall. Bark grayish brown, rough. Branchlets yellow tomentose, gradually glabrescent, scattered with minute prominent lenticels. Leaves 15–19-foliolate; rachis 25–30 cm, including petiole 5–7 cm; stipels ca. 1.5 mm, caducous; leaflet blades oblong-lanceolate to oblong, 4–9 × 1.5–2.5 cm, papery, abaxially yellow velutinous especially on veins, adaxially finely appressed pubescent, secondary veins 7 on each side of mid-vein, base obtuse to broadly cuneate, apex acute. Pseudoracemes axillary, 20–25 cm, shorter than subtending leaf; rachis nodes with 4 or 5 flowers clustered on a short decumbent spur; peduncle 3.5–8 cm, yellow tomentose. Pedicel 4–5 mm. Flowers 1.3–1.6 cm. Calyx ca. 5 mm; teeth longer than tube, cuspidate. Corolla white or lilac; standard orbicular, outside apically sparsely puberulent. Ovary densely sericeous, with 6 or 7 ovules. Legume linear, 9–14 × 1.3–1.6 cm, flat, thinly leathery, brown tomentose, apex truncate and with a beak; suture prominent. Seeds ca. 3–5 per legume, chestnut-brown, oblong, ca. 12 × 8 mm, compressed. Fl. May–Aug, fr. Jul–Nov.

• Thickets, woodlands, evergreen broad-leaved forests; 500–1900 m. N Guangdong, N Guangxi, S Guizhou, S Hunan, SW Sichuan, Yunnan.


印度崖豆 yin du ya dou (yuanshian zhong)


Leaves and inflorescences gathered near apex of branchlets. Leaflet blades lanceolate, 2–3.5(–6) × 0.7–1.5 cm, abaxially appressed pubescent, adaxially sparsely puberulent, mid-vein adaxially flat, secondary veins 5 or 6 on each side of mid-vein. Fl. Apr–Aug, fr. Jun–Oct.

Open places of lowland woodlands, thickets, grasslands, sparse or mixed woodlands, woodland margins; near sea level to 1700 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, S Taiwan, Yunnan [India, Laos, Myanmar, Vietnam].

1a. Leaflet blades adaxially glabrous but pilose on midvein and margins when young.

2a. Leaflet blades ovate, 1.2–1.8 cm, base subcordate and asymmetric ........................................ 17d. var. *parvifolia*

2b. Leaflet blades elliptic, 2–6 cm, base cuneate-rounded and symmetric .............................. 17g. var. *microphylla*

1b. Leaflet blades adaxially pubescent or villous.

3a. Leaflet blades 3.5–10 cm.  

5a. Leaflet blades oblong, base conspicuously asymmetric ........................................ 17e. var. *yunnanensis*

5b. Leaflet blades lanceolate-elliptic, base symmetric or only slightly asymmetric.

6a. Leaflet blades abaxially appressed pilose .......... 17b. var. *laxior*

6b. Leaflet blades abaxially gray tomentose .......... 17d. var. *tomentosa*


疏叶崖豆 shu ye ya dou


Leaves and inflorescences scattered on branches rather than near apex of branchlets. Leaflet blades oblong-elliptic, 3.5–10 × 1.5–4 cm, abaxially pale green and finely appressed pilose, adaxially pubescent, secondary veins 6 or 7 on each side
of midvein, base symmetric or only slightly asymmetric, apex acute.

Thickets on riverbanks; 200–1100 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Yunnan [India].


华南小叶崖豆 hua nan xiao ye ya dou

*Millettia chenkangensis* Hu.

Leaflet blades narrowly elliptic, 2–3.5(–6) cm, adaxially pubescent but glabrescent, secondary veins 8 or 9 on each side of midvein and curved toward apex, both ends acute but sometimes apex retuse, margins slightly revolute. Calyx teeth cuspidate.

- Grasslands, sparse woodlands; 800–1500 m. Guangxi, Yunnan.


绒叶印度崖豆 rong ye yin du ya dou

Leaflet blades 3.5–10 cm, abaxially gray tomentose, adaxially villous but become sparsely so with age, base symmetric or only slightly asymmetric. Calyx with dense trichomes.

- Thickets on dry slopes; 100–800 m. Guangxi, Yunnan [India, Myanmar].

17e. Millettia pulchra var. yunnanensis (Pampanini) Dunn, J. Linn. Soc., Bot. 41: 152. 1912.

云南崖豆 yun nan ya dou


Leaflet blades oblong, 3.5–10 cm, adaxially pubescent, secondary veins 6 or 7 on each side of midvein, adaxially sunken, and densely yellow villous, base conspicuously asymmetric, apex acute.

- Thickets, sparse woodlands; 500–1200 m. Yunnan [Myanmar].


景东小叶崖豆 jing dong xiao ye ya dou

Leaflet blades ovate, 1.2–1.8 cm, adaxially glabrous but pilose on midvein and margin when young, base subcordate and asymmetric.

- Thickets, woodland margins; ca. 1700 m. S Yunnan.

17g. Millettia pulchra var. microphylla Dunn, J. Linn. Soc., Bot. 41: 512. 1912.

台湾小叶崖豆 tai wan xiao ye ya dou

Leaflet blades elliptic, 2–6 cm, abaxially gray villous especially on margins, secondary veins 4 or 5 on each side of midvein but obscure, base cuneate-rounded and symmetric. $2n = 22^*$.

- Thicket margins; below 200 m. S Taiwan.


香港崖豆 xiang gang ya dou


Shrubs or trees, to 5 m tall, erect. Bark smooth, dark gray. Branchlets ridged, tomentose, scattered with prominent lenticels. Stipules lanceolate, 2–3 mm. Leaves (7 or)9–13(or 15)-foliolate; rachis 15–20 cm, including yellow tomentose petiole 3.5–4.5 cm; stipels present; leaflet blades broadly ovate to elliptic, 4–5.5 × 2–3 cm, papery, abaxially tomentose, adaxially densely pubescent, secondary veins 6 or 7 on each side of midvein and reaching to margins, base rounded to subcordate, apex rounded. Pseudoracemes axillary, gathered near apex of branchlets, shorter than subtending leaf, yellow tomentose. Flowers 8–11 mm. Calyx ca. 3 mm. Corolla purple; standard suborbicular, outside puberulent. Ovary sericeous, with 2–4 ovules. Legume linear, 5–9 × 1–1.5 cm, flat, brown tomentose, somewhat glabrescent. Seeds 2 or 3 per legume, orange, oblate, ca. 7 mm. Fl. May–Jul, fr. Nov–Dec.

- Thickets; 300–800 m. Guangdong, S Guangxi.

73. CALLERYA Endlicher, Gen. Pl., Suppl. 3: 104. 1843.

鸡血藤属 ji xue teng shu

Wei Zhi (韦直); Les Pedley


Lianas, scandent shrubs, or rarely trees. Stipules glabrous, mostly deciduous. Leaves imparipinnate; stipels narrowly triangular, persistent or deciduous; leaflets (sub)opposite. Flowers neither paired nor clustered, in axillary or terminal racemes, sometimes forming axillary or terminal panicles; bracts shorter or longer than corresponding flower, usually deciduous; bracteoles on calyx or rarely on distal part of pedicel, persistent or not. Calyx usually truncate with short teeth. Corolla standard glabrous to densely sericeous outside, Chinese taxa with or without basal calluses, basally reflexed; wings and keel petals ± equally long; wings often partially adnate to keel. Stamens diadelphous; vexillary filament free from other 9. Ovary sometimes stipitate. Legume indehiscent or tardily dehiscent, thin to thickly woody, flat or inflated; sutures not winged, sometimes thickened. Seeds 1–9 per legume, roundish; radicle folded.

About 30 species: S and SE Asia, Australia, New Guinea; 18 species (ten endemic) in China.
1a. Standard outside glabrous.

2a. Calyx densely sericeous, hisrate, or tomentose; ovary sericeous or tomentose.

3a. Leaflets 7, blades 4–8 × 1–2 cm, apex acuminate to caudate; flowers ca. 1.8 cm; corolla yellow .......................... 3. C. fordi

3b. Leaflets 7–13, blades 4–13 × 1–4 cm, apex acute; flowers 2.5–3.5 cm; corolla white, creamy, pale pink, or lilac.

4a. Leaflet blades shiny, glabrous on adaxial surface, rusty pubescent and glabrescent on abaxial surface; ovules numerous; standard with 2 basal calluses ............................................................................................................. 1. C. speciosa

4b. Leaflet blades villous on both surfaces; ovules 4–6; standard without basal calluses .............................. 2. C. bonatiana

2b. Calyx sparsely pubescent; ovary glabrous.

5a. Stipules inserted at tip of persistent gibbosity on stem.

6a. Calyx pubescent; legume carmine when dry, oblong, 10–11 cm, convex, suture thickened; panicles ca. 30 cm ........................................................ ................................................................. 4. C. eurybotrya

6b. Calyx glabrescent; legume blackened when dry, linear, ca. 15 cm, flat, suture not thickened; panicles 10–20 cm ................................................................................. 5. C. reticulata

5b. Stipules not inserted at tip of persistent gibbosity on stem.

7a. Panicle terminal, branchlets ascending; corolla yellowish white with a pink halo; leaf blade glabrous and shiny, abaxially pale green when dry, secondary and tertiary veins distinct and raised on both surfaces, apex acuminate to caudate ................................................................................................. 6. C. championii

7b. Racemes axillary, pendulous; corolla white or purple; leaf blade flat and rough, abaxially dull grayish green when dry, secondary and tertiary veins indistinct, apex acute ................................................. 7. C. kiangsiensis

1b. Standard outside densely sericeous.

8a. Leaflets 3(or 5).

9a. Stipules absent; leaflet blades subleathery ................................................................................................. 8. C. tsui

9b. Stipules present; leaflet blades papery ........................................................................................................ 13. C. sphaerosperma

8b. Leaflets 5 or 7 (or 5 in C. dorwardii).

10a. Legume flat, not distinctly contracted between seeds; seeds lenticular.

11a. Panicles straight, branchlets contiguos, flowers closely arranged.

12a. Corolla violet to purple; legume stipitate, brown tomentose; leaflet blades ovate-lanceolate or oblong, subleathery; stipules subulate, ca. 2 mm ...................................................... 16. C. nitida

12b. Corolla white or pale pink; legume sessile, gray hisrate; leaflet blades broadly elliptic to ovate, papery; stipules filiform, 5–6 mm ................................................................. 17. C. congestiflora

11b. Panicles spreading, branchlets slender, flowers laxly arranged.

13a. Leaflets (5 or)7, blades caudate at apex; panicles long pedunculate ................. 15. C. longipechunula

13b. Leaflets 5, blades acute at apex; panicles subsessile .................................................. 18. C. delsiana

10b. Legume inflated, usually distinctly contracted between seeds; seeds globose or reniform.

14a. Branchlets, leaf rachises, and leaflet blades abaxially with dense trichomes, not glabrescent; legume densely brown tomentose.

15a. Leaflet blades 4–8 cm wide, abaxially brown velutinous; legume 2–2.5 cm wide .............. 9. C. oosperma

15b. Leaflet blades 1.8–3 cm wide, abaxially rusty tomentose; legume ca. 1.5 cm wide .......... 14. C. sericosema

14b. Branchlets, leaf rachises, and leaflet blades abaxially with sparse trichomes or glabrescent; legume gray pubescent, yellow tomentose, or gray tomentose.

16a. Panicles compact, branchlets congested; legume not contracted between seeds ........ 12. C. dorwardii

16b. Panicles lax, branchlets spread out; legume contracted between seeds.

17a. Floriferous branchlets slender; leaflet blades obovate; petiolules ca. 4 mm; stipels ca. 4 mm .................................................................................................................. 10. C. cinerea

17b. Floriferous branchlets straight; leaflet blades oblong; petiolules 2–3 mm; stipels ca. 1 mm .................................................................................................................. 11. C. gentiliana


美丽鸡血藤 mei li jixue teng


Lianas, 1–3 m. Bark brown. Branchlets brown tomentose, glabrescent. Leaves 13-foliolate; rachis 15–25 cm, including petiole 3.4 cm; leaflet blades oblong-lanceolate to elliptic-lanceolate, 4–8 × 2–3 cm, papery, abaxially rusty pubescent, glabrescent, and reddish brown when dry, adaxially glabrous and shiny but glaucous when dry, base rounded, margins slightly revolute, apex acute and with a short tip. Racemes axillary, usually congested near apex of branchlets to form large panicles, ca. 30 cm, brown tomentose. Pedicel and calyx tomentose. Flowers 2.5–3.5 cm, fragrant. Corolla white, creamy, or pale pink; standard orbicular, glabrous, with 2 basal calluses. Ovary tomentose, with numerous ovules. Legume linear, 10–15 × 1–2 cm, flat, brown tomentose, base tapering to a short stipe, apex beaked; valves woody. Seeds 4–6 per legume, black, ovoid, ca. 10 × 8 mm. Fl. Jul–Sep, fr. Aug–Oct.
The roots are rich in starch and used to make a tonic wine.


“Millettia reticulata var. stenophylla” Merrill & Chun, Sun-yatsenia 5: 83. 1940.

Leaflet blades linear to narrowly lanceolate, (3–)3.5–5 × 0.5–1.2 cm, base tapering to cuneate.

- Thickets by streams; 200–1200 m. Hainan.


Lianas, to 2 m, glabrous except inflorescences. Stems reddish brown, with scattered lenticels. Leaves 5(or 7)-foliolate; racis 10–20 cm, including petiole 3–5 cm; leaflet blades ovate to ovate-oblong, (3–)4–6 × 1.5–2(–3) cm, papery, both surfaces glabrous and shiny, pale green when dry, secondary and tertiary veins distinct and raised on both surfaces, base round, apex acuminate to caudate. Panicles terminal, 15–20 cm; flowering branchlets 6–8 cm, ascending, straight and solid, nodes congested. Flowers ca. 1.2 cm. Corolla yellowish white with a pink halo; standard broadly ovate, with 2 basal veins indistinct, base rounded, apex acute. Racemes axillary, 8–12 cm, as long as subtending leaf, puberulent. Flowers 1.2–1.5 cm. Corolla white or purple, apically slightly roseate at margin; standard oblong, glabrous, without basal calluses. Ovary stipitate, glabrous, with numerous ovules. Legume linear, 6–12 × 0.5–1.2 cm, flat; valves thin. Seeds 2 or 3 per legume, lenticular when immature. Fl. May–Aug, fr. Jul–Nov.

- Thickets by ravines of rocky valleys; 200–800 m. Fujian, Guangdong, Guangxi.

The stems and roots are poisonous but also used medicinally. Although P. K. Lôc made the combination Callerya championii (Bot. Zhurn. (Moscow & Leningrad) 81(10): 97. 1996), it was not validly published because he did not provide a full bibliographic reference to the basionym (Vienna Code, Art. 33.4).

7. Callerya kiangsiensis (Z. Wei) Z. Wei & Pedley, comb. nov.


Lianas. Stems reddish brown, terete, slender, with dense minute lenticels. Leaves 7–9 or 9-foliolate; racis 6–18 cm, including petiole 2–3 cm; leaflet blades ovate, (1.5–)3–5(–6) × 1–2.5 cm, papery, both surfaces glabrous, abaxially dull grayish green when dry, adaxially dark green, secondary and tertiary veins indistinct, base rounded, apex acute. Racemes axillary, 8–12 cm, as long as subtending leaf, puberulent. Flowers 1.2–1.5 cm. Corolla white or purple, apically slightly roseate at margin; standard oblong, glabrous, without basal calluses. Ovary stipitate, glabrous, with numerous ovules. Legume linear, ca. 10 × 1.2 cm, flat, straight, base tapering to a ca. 3 mm stipe, apex with a short hooked beak. Seeds 5–9 per legume, black, lenticular, ca. 7 × 5 mm. Fl. Jun–Aug, fr. Sep–Oct.

- Sparse thickets, thickets on slopes; 200–600 m. S Anhui, N Fujian, SE Hubei, E Hunan, Jiangxi, W Zhejiang.


Lianas, 3–10 m. Stems dark brown, terete, straight, fine ridged, brown tomentose, glabrescent, without lenticels. Leaves 3(or 5)-foliolate; racis 12–28 cm, including petiole 5–8 cm; stipels absent; leaflet blades broadly elliptic to elliptic, (6–)10–18 × 5–8 cm, subleathery, both surfaces glabrous and shiny, reticulate veins prominent, base obtuse to broadly cuneate, apex rounded and with a cusp. Panicles terminal, 15–30 cm; flowering branchlets spreading, often leafy at base, brown tomentose, nodes congested. Flowers 1.5–2.5 cm. Corolla pale yellow flushed with red or lilac; standard oblong, without basal calluses, outside densely sericeous. Ovary stipitate, sericeous, with 4–7 ovules. Legume ellipsoid when 1-seeded and ca. 5.5 × 4 cm, linear-oblong when 2- or 3-seeded and ca. 7 × 3 cm, inflated but contracted between seeds, brown tomentose but generally glabrescent, base tapering to 5 mm stipe, apex with a hard hooked beak. Seeds 1–3 per legume, dark brown, subglobose to oblately spheroid, 2.2–1.2 × 1.5–2.5 cm. Fl. Jul–Sep, fr. Oct–Dec.

- Thickets, woodlands in valleys; 200–1600 m. Guangdong, Guangxi, S Guizhou, Hainan, S Hunan, S Yunnan.

The stem and root are used medicinally. The bast fibers are rather tough and used for making rope. The seeds are edible after stewing.

9. Callerya oosperma (Dunn) Z. Wei & Pedley, comb. nov.


Lianas, to 20 m. Stem brown, terete, strong and ridged, brown tomentose, generally glabrescent. Leaves 5-foliolate; racis 20–40 cm, including petiole 6–11 cm; leaflet blades elliptic-lanceolate to ovate-oblong, 8–20 × 4–8 cm with basal pair usually smallest, papery, abaxially densely brown velutinous, adaxially glabrous or sparsely villous, base cuneate to rounded, apex obtuse to sometimes retuse. Panicles terminal, 10–20 cm, brown tomentose; flowering branchlets spreading. Flowers 1.5–2 cm. Corolla scarlet; standard broadly ovate, with 2 basal calluses and also auriculate, outside densely sericeous. Ovary densely sericeous, with 5 or 6 ovules. Legume ovoid when 1-seeded, cylindrical when several seeded, 6–13 × 2–2.5 cm, inflated but contracted between seeds, brown tomentose, tardily dehiscent, apex beaked. Seeds (1 or)2–4 per legume, tawny, ovoid, 2–3 cm in diam. Fl. May–Jul, fr. Aug–Nov.

- Sparse woodlands in valleys; 200–1700 m. SW Guangdong, Guangxi, Guizhou, Hainan, SW Hunan, S Yunnan.

The seeds are poisonous and used as an insecticide.


“Millettia cinerea” Bentham in Miquel, Pl. Jungh. 249. 1852.
Shrubs, scandent, to 6 m. Stems terete, rough, ridged, glabrescent. Leaves 5-foliolate; rachis 15–25 cm, including petiole 3–4 cm; stipels ca. 4 mm; petiololes ca. 4 mm; leaflet blades obovate-elliptic, basal pair ca. 5.5 × 3 cm, lateral pair and terminal one ca. 15 × 7 cm with laterals rather smaller than terminal, papery, abaxially sparsely hirsute and particularly evident on veins, adaxially glabrescent except midvein, base broadly cuneate, rounded, or rarely subcordate, apex acute. Panicles terminal, 10–15 cm; flowering branchlets spreading to 6 cm, with dense appressed trichomes. Flowers 1.2–1.6 cm. Corolla red to mauve; standard ovate, outside rusty sericeous, basally thickened and emarginate. Ovary shortly stipitate, tomentose, with 5–7 ovules. Legume linear-oblong, ca. 13 × 2 cm, inflated but contracted between seeds, densely gray pubescent. Seeds 1–4 per legume, dark violet, ellipsoid, 1.4–1.8 cm. Fl. Feb–Jul, fr. Aug–Nov.

Secondary evergreen broad-leaved forests by ravines; 500–1200 m. SW Sichuan, SE Xizang, S Yunnan [Bangladesh, Bhutan, India, Tchéou, 239. 1914–1915] [Myanmar, Nepal, Thailand].

11. **Callerya gentiliana** (H. Léveillé) Z. Wei & Pedley, **comb. nov.**

**黔滇鸡血藤** qian dian jia xue teng


Lianas, 1.5–3 m. Stems grayish brown, rough, gray puberulent, glabrescent. Leaves 5-foliolate; rachis 12–18 cm, including petiole 3–5 cm; stipels ca. 1 mm; petiololes 2–3 mm; leaflet blades ovate-elliptic to oblong-elliptic, lateral pairs 6–8(–10) × 2–3(–4) cm, terminal one ca. 18 × 8 cm, papery, with sparse trichomes or glabrescent, base cuneate to subcordate, apex acute to obtuse. Panicles terminal, 8–15 cm; flowering branchlets spreading, straight, brown tomentose. Flowers 1.5–2 cm. Corolla purple; standard oblong, without basal calluses, outside densely sericeous. Ovary velutinous, with numerous ovules. Legume linear, 8–15 × 1.5–2 cm, inflated, shortly stipitate, yellow tomentose, contracted between seeds, apex with a curved beak. Seeds 5 or 6 per legume, dark brown, ovoid, ca. 2 × 1.5 cm; hilum in middle. Fl. Jun–Jul, fr. Oct–Nov.

- Sparse woodlands of mountains, especially in limestone valleys; 1200–2500 m. Guizhou, S Sichuan, Yunnan.

12. **Callerya dorwardii** (Collett & Hemsley) Z. Wei & Pedley, **comb. nov.**

**滇缅鸡血藤** qian min jia xue teng


Lianas, to 6 m. Stems brown, rough, without lenticels. Branchlets yellowish white pubescent, generally glabrescent. Leaves 3- or 5-foliolate; rachis 12–25(–35) cm, including petiole (4–)6–7(–9) cm; leaflet blades broadly oovate to elliptic, 8–15 (–22) × 3.5–6(–10) cm with basal pair usually smallest, papery, abaxially with yellow or white scattered trichomes but glabrescent when mature, adaxially glabrous or with sparse trichomes on veins, base cuneate, rounded, or rarely cordate, apex acute. Panicles axillary, strong, 12–18 cm, densely pubescent; flowering branchlets short. Flowers 1.8–2.3 cm. Corolla lilac to mauve; standard orbicular, with 2 basal calluses, outside densely sericeous, base shortly clawed. Ovary tomentose, with 5 ovules. Legume oblong, ca. 9 × 3 cm, inflated, yellow tomentose, apex beaked. Seeds 1 or 2 per legume, pale brown, broadly ovoid, ca. 2.5 × 2 cm. Fl. Apr–May, fr. Sep–Oct.

Thickets on slopes; 800–1900 m. Guizhou, Yunnan [Myanmar, Thailand].

13. **Callerya sphaerosperma** (Z. Wei) Z. Wei & Pedley, **comb. nov.**

**球子鸡血藤** qiu zi ji xue teng


Shrubs, scandent. Bark pale yellow. Stems puberulent when young, glabrescent, sparsely scattered with minute lenticels, basally brown and peeled off. Leaves 3-foliolate; rachis 15–25 cm, including petiole 4–6 cm; stipels ca. 2 mm; leaflet blades elliptic-lanceolate, lateral ones 9–12 × 3.5–5 cm, terminal one 11–18 × 6–9 cm, papery, abaxially straw-green with prominent veins, adaxially dark green and flat. Panicle terminal 12–15 cm; flowering branchlets spreading, puberulent. Flowers ca. 1.5 cm. Corolla red to purple; standard oblong, without basal calluses, outside densely sericeous. Ovary sericeous, with 6–8 ovules. Legume globose, 5–6.5 × ca. 3 cm, leathery, brown tomentose, apex beaked; suture evident. Seeds 1 or 2 per legume, dark brown, broadly ovoid. Fl. Jun–Aug, fr. Oct–Nov.

- Shady ravines; ca. 1000 m. Guangxi, Guizhou.

14. **Callerya sericosema** (Hance) Z. Wei & Pedley, **comb. nov.**

**锈毛鸡血藤** xiu mao ji xue teng


Shrubs, scandent. 1.5–2 m. Branchlets brown, terete, rusty tomentose, glabrescent. Leaves 5-foliolate; rachis 13–18 cm, including petiole 3–6 cm; leaflet blades broadly lanceolate, 6–10 × 1.8–3 cm with basal pair smallest, papery, abaxially rusty tomentose, adaxially appressed pubescent and rather so on midvein and margin, base obtuse, apex acute to acuminate. Panicles terminal, 8–10 cm; flowering branchlets straight, rusty tomentose, nodes congested. Flowers ca. 1.7 cm. Corolla lilac to pale pink; standard ovate, without basal calluses, outside densely sericeous. Ovary yellow tomentose, with 5 or 6 ovules. Legume linear, 4–10 × ca. 1.5 cm, inflated, brown tomentose, apex beaked. Seeds 1–4 per legume, brown, ovoid to oblate. Fl. Jun–Aug, fr. Aug–Oct.

- Open places or sparse thickets in river valleys; 500–1300 m. Guangxi, Guizhou, W Hubei, Hunan, Sichuan, NE Yunnan.


**长梗鸡血藤** chang geng ji xue teng

Lianas. Branchlets brown, smooth and slender, yellow tomentose, glabrescent, without lenticels. Leaves (5 or)7-foliolate; rachis 30–35 cm, including petiole 5–7 cm; leaflet blades lanceolate, basal pair 4.8 × 2.5–3.5 cm, lateral pairs and terminal one 12–20 × 3.5–6 cm with terminal one largest, papery, abaxially densely villous, adaxially appressed pubescent, base broadly cuneate to narrowly subcordate, apex acuminate. Panicles terminal, 20–40 cm, slender; flowering branchlets scattered; peduncle rather long, yellow tomentose. Flowers 1.5–1.7 cm. Corolla red; standard obovate, outside densely sericeous. Ovary tomentose, with 4–8 ovules. Legume linear-oblong, 10–12 × 1.2–1.4 cm, flat, densely brown sericeous, apex beaked. Seeds 1–3 per legume, reddish brown, ca. 1.5 × 2 cm. Fl. May–Aug, fr. Jul–Oct.

- Evergreen broad-leaved forests in shady places in valleys; ca. 1400 m. NW Guangxi, SW Guizhou, E Yunnan.

16a. Callerya nitida var. nitida

亮叶鸡血藤 (原变种) liang ye ji xue teng (yuan bian zhong)


Leaflet blades lanceolate to oblong, 5–9(–11) × 3–4 cm, abaxially glabrous or sparsely puberulent, adaxially glabrous and shiny but sometimes sparsely puberulent on midvein, apex acute to cuspidate. Flowers 2.2–2.4 cm. $2n = 32^*$.  
- Coastal thickets, lowland sparse woodlands; near sea level to 800 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Jiangxi, Taiwan.


峨眉鸡血藤 e mei ji xue teng


Leaf rachis slender; leaflet blades lanceolate, 3.5–5.5 × 2–3 cm, both surfaces glabrous or glabrescent, apex acuminate. Flowers 1.6–1.8 cm.

- Thickets, forest margins; 800–1500 m. Fujian, Guangdong, Guangxi, Guizhou, Jiangxi, Sichuan, Yunnan, Zhejiang.


丰城鸡血藤 feng cheng ji xue teng


Leaflet blades ovate, 3.5–5.5 × 2–3 cm, abaxially densely reddish brown hirsute becoming blackened when dry, adaxially opaque and rough, apex cuspidate. Flowers 1.6–1.8 cm.

- Thickets and open places on slopes; 500–1000 m. Fujian, Guangdong, Guangxi, Hunan, Jiangxi.  

The stem and roots are used medicinally for improving blood circulation.

17. Callerya congestiflora (T. C. Chen) Z. Wei & Pedley, comb. nov.

密花鸡血藤 mi hua ji xue teng


Lianas, to 5 m. Stems yellowish brown, terete, ridged, densely villous, glabrescent. Leaves 5-foliolate; rachis 15–30 cm, including petiole 4.5–8.5 cm; leaflet blades broadly elliptic to ovate, 11–13 × 6–8 cm with basal pair smallest, papery, abaxially sparsely villous, adaxially glabrous except midvein, base obtuse to broadly cuneate, apex acute. Panicles terminal, 14–16 cm; flowering branchlets grouped in twos or threes, densely yellow villous, nodes crowded. Flowers ca. 1.6 cm. Calyx outside densely sericeous. Corolla white or pale pink; standard obovate, outside densely villous and shiny, base obtuse, apex acuminate. Flowers 2.2–2.4 cm. $2n = 32^*$.  
- Coastal thickets, lowland sparse woodlands, near sea level to 800 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Jiangxi, Taiwan.
18. Callerya dielsiana (Harms) P. K. Lôc ex Z. Wei & Pedley, comb. nov.

香花鸡血藤 xiang hua ji xue teng

Shrubs, scandent, 2–5 m. Stems grayish yellow, splitting, glabrous or puberulent. Leaves 5-foliolate; rachis 15–30 cm, including petiole 5–12 cm; leaflet blades lanceolate, oblong, or narrowly oblong, 5–15 × 1.5–6 cm, abaxially grayish glabrous, sparsely puberulent, or yellow hirsute, adaxially glabrous, mid-vein abaxially raised and adaxially sunken, secondary veins 6–9 on each side of midvein, reticulate veins evident on both surfaces or only abaxially, base rounded or sometimes subcordate, apex acute, acuminate, or rarely obtuse. Panicles terminal, 10–25(–40) cm, yellow puberulent; flowering branchlets 6–15 cm, spreading, nodes close together. Flowers 1.2–2.4 cm. Corolla 25(–40) cm, yellow puberulent; flowering branchlets 6–15 cm, apex acute, acuminate, or rarely obtuse. Panicles terminal, 10–25(–40) cm, yellow puberulent; flowering branchlets 6–15 cm, spreading, nodes close together. Flowers 1.2–2.4 cm. Corolla purple; standard broadly ovate, without basal calluses, outside silvery to rusty sericeous, base subcordate. Ovary linear, tomentose, with 8 or 9 ovules. Legume linear to oblong, 7–12 × 1.5–2 cm, flat, gray tomentose; valves thin or woody. Seeds 3–5 per legume, tawny, oblong or subglobose, ca. 8 × 6 mm. Fl. May–Sep, fr. Jun–Nov.

- Mixed woodlands and thickets on slopes; 800–2500 m. Anhui, Fujian, Guangdong, Guizhou, Hainan, Hunan, Jiangxi, S Shaanxi, Sichuan.

18a. Leaflet blades abaxially grayish yellow hirsute .......................................................... 18c. var. solida

18b. Leaflet blades abaxially glabrous or sparsely puberulent.

- Leaflet blades lanceolate to narrowly oblong, adaxially shiny and without prominent reticulate veins; valves subwoody; seeds oblong ............................... 18a. var. dielsiana

2b. Leaflet blades oblong, adaxially rough with prominent reticulate veins; valves thinly leathery; seeds subglobose ............................... 18b. var. heterocarpa

18a. Callerya dielsiana var. dielsiana

香花鸡血藤变种 xiang hua ji xue teng yan zhuan zhong


Leaflet blades lanceolate to narrowly oblong, 5–10(–12) × 1.5–3.5 cm, papery, abaxially glabrous or sparsely puberulent, adaxially glabrous and shiny. Panicles 10–15 cm. Flowers 1.2–1.8 cm. Legume linear, 7–9 × ca. 1.5 cm, valves subwoody. Seeds oblong.

- Mixed woodlands and thickets on slopes; 800–2500 m. Anhui, Fujian, S Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, S Shaanxi, Sichuan, Yunnan, Zhejiang.

Although P. K. Lôc attempted to make the combination Callerya dielsiana (Harms) P. K. Lôc ex Z. Wei, it was not validly published because he did not provide a full bibliographic reference to the basionym (Vienna Code, Art. 33.4). Consequently (Art. 43.1), the two varietal combinations made below were not validly published by X. Y. Zhu (in X. Y. Zhu et al., Legumes China, 452. 2007).

18b. Callerya dielsiana var. heterocarpa (Chun ex T. C. Chen) X. Y. Zhu ex Z. Wei & Pedley, comb. nov.

异果鸡血藤 yi guo ji xue teng


Leaflet blades oblong, 7–9(–13) × 3–4.5 cm, papery, abaxially sparsely puberulent, adaxially glabrous, rough, and with reticulate veins prominent. Panicles 12–20 cm. Flowers 1.2–1.8 cm. Legume oblong, 7–11 × ca. 2 cm, valves thinly leathery. Seeds subglobose.

- Thickets in river valleys; 300–1900 m. Fujian, Guangdong, Guangxi, Guizhou, Jiangxi.

18c. Callerya dielsiana var. solida (T. C. Chen ex Z. Wei) X. Y. Zhu ex Z. Wei & Pedley, comb. nov.

雪峰山鸡血藤 xue feng shan ji xue teng


Leaflet blades oblong, 9–15 × 4–6 cm, papery, abaxially grayish yellow hirsute, reticulate veins prominent. Panicles 15–25(–40) cm. Flowers 1.8–2.4 cm. Legume oblong, 8–12 × ca. 2 cm, valves leathery. Seeds subglobose.

- Open places at forest margins; 600–1400 m. Guangxi, W Hunan.

74. PONGAMIA Adanson, Fam. Pl. 2: 322, 593. 1763 [“Pongam”], nom. cons.

水黄皮属 shui huang pi shu

Zhang Dianxiang (张奠湘); Les Pedley

Trees. Stipules caducous. Leaves imparipinnate; stipels absent. Inflorescences axillary, racemose; bracts small, caducous. Calyx campanulate to calathiform, apex truncate. Corolla longer than sepals; standard orbicular, with 2 calluses on claw, basally auriculate; wings oblong, oblique, auriculate; keels falcate, apically adherent, apex truncate. Stamens 10, diadelphous; vexillary stamen free from other 9; anthers basifixated. Ovary subsessile, with 2 ovules; style inflexed, glabrous; stigma capitate. Seed 1 per legume.

One species: pantropical and extending into subtropics.

水黄皮  shui huang pi

*Cytisus pinnatus* Linnaeus, Sp. Pl. 2: 741. 1753; *Derris indica* (Lamarck) Bennet; *Gleditsia indica* Lamark; *G. pinnata* (Linnaeus) Taubert; *Millettia pinnata* (Linnaeus) Panigrahi; *Pongamia glabra* Ventenat; *P. mitis* (Linnaeus) Kurz; *Robinia mitis* Linnaeus.

Trees, 8–15 m tall. Branchlets sometimes tomentose, glabrescent, with dense minute cinereous lenticels. Leaves 5- or 7-foliolate; rachis 20–26 cm, including petiole 5–6 cm; petiolules 6–8 mm; leaflet blades ovate, broadly elliptic, or oblong, 5–10 × 4–8 cm, leathery, base rounded, broadly cuneate, or truncate, apex rounded to acuminate. Inflorescences axillary, racemose, 15–20 cm, rachis nodes usually with 2 flowers. Pedicel 5–8 mm; bracteoles 2, inserted at base of calyx, ovate. Calyx campanulate to calathiform, ca. 3 mm, outside sparsely yellowish pubescent; teeth obscure. Corolla white or pink, 1.2–1.4 cm; standard orbicular, outside thinly sericeous, base auriculate, claw 2-callose; wings oblong, oblique, base auriculate; keels falcate, apically adherent, apex truncate. Stamens 10, vexillary stamen distinct from other 9 or slightly connate at middle of sheath. Ovary sub-sessile, with 2 ovules; style inflexed, glabrous; stigma capitate. Legume ellipsoid to oblong, flat, 4–5 × 1.5–2.5 cm, indehiscent, covered with obscure warts, apex shortly beaked. Seed reniform. Fl. May–Jun, fr. Aug–Oct. 2n = 22.

Coastal areas along beaches or riverbanks, thickets; near sea level. Fujian, Guangdong, Hainan, Taiwan [Bangladesh, India, Indonesia, Japan, Malaysia, Myanmar, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; C Africa, Australia, Central America, Pacific islands].

*Pongamia pinnata* is represented in China by the typical variety. Another variety, *Pongamia pinnata* var. *xerocarpa* (Hassk) Alston, occurs in S and SE Asia.

75. **WISTERIA** Nuttall, Gen. N. Amer. Pl. 2: 115. 1818, nom. cons.

紫藤  zi teng shu

We i Zhi (韦直); Les Pedley

*Phaseoloides* Duhamel; *Rehsonia* Stritch.

Lianas, deciduous. Winter buds ovoid; scales 3–5. Stipules present. Leaves imparipinnate; leaflet blades opposite, margin entire; stipels present. Racemes terminal, elongate, pendulous; nodes scattered on rachis, with 1 flower. Flowers 1.5–2.5 cm. Corolla standard outside sparsely villous, apex emarginate; abaxial calyx tooth as long as others ................................................................................................................ 2.

1. **Wisteria sinensis** (Sims) Sweet, Hort. Brit. 121. 1826.

紫藤  zi teng


Lianas, to 25 m. Stems twined leftward, white villous when young, soon glabrescent. Leaves 7–13-foliolate; rachis 15–25 cm, including petiole 3–5 cm; leaflet blades elliptic-ovate to lanceolate-ovate, 5–8 × 2–4 cm with basal pair smallest and becoming larger apically, both surfaces appressed pubescent when young but glabrescent, base rounded to cuneate and some-

what asymmetric, apex attenuate to caudate. Racemes terminal or axillary from branchlets of previous year, 15–30 × 8–10 cm, white villous. Pedicel 2–3 cm, slender. Flowers 2–2.5 cm, fragrant. Calyx with adaxial tooth longer than others ................................................................................................................ 1. *W. sinensis*

2. Flowers ca. 1.5 cm; pedicel 0.6–1.2 cm; corolla standard outside thinly sericeous, base auriculate, claw 2-callose; wings oblong, oblique, base auriculate; keels falcate, apically adherent, apex truncate. Stamens 10, vexillary stamen distinct from other 9 or slightly connate at middle of sheath. Ovary sub-sessile, with 2 ovules; style inflexed, glabrous; stigma capitate. Legume ellipsoid to oblong, flat, 4–5 × 1.5–2.5 cm, indehiscent, covered with obscure warts, apex shortly beaked. Seed reniform. Fl. May–Jun, fr. Aug–Oct. 2n = 22.

Coastal areas along beaches or riverbanks, thickets; near sea level. Fujian, Guangdong, Hainan, Taiwan [Bangladesh, India, Indonesia, Japan, Malaysia, Myanmar, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; C Africa, Australia, Central America, Pacific islands].

This species is cultivated extensively in areas beyond its native range.

2. Wisteria brevidentata Rehder, J. Arnold Arbor. 7: 163. 1926.

短梗紫藤 duan geng zi teng

Lianas. Stems appressed villous, glabrescent and grayish yellow in second year. Leaves 9- or 11(or 13)-foliolate; rachis 13–17 cm, including petiole 3–4 cm; petiolules sparsely hirsute; leaflet blades elliptic to ovate-oblong, 2.5–5 × 1–1.8 cm, both surfaces sparsely hirsute especially on midvein, base broadly cuneate to rounded, apex obtuse and apiculate. Racemes 10–18 cm. Pedicel 6–12 mm, villous. Flowers ca. 1.5 cm. Calyx with abaxial tooth as long as others. Corolla purple; standard suborbicular, outside sparsely villous, base subcordate, apex emarginate. Ovary tomentose. Legume and seeds not seen.

● Hill slopes and river valleys, cultivated. Fujian, Yunnan.

The status of this species is uncertain, and it may be just a variant of Wisteria sinensis. Collections are known from both cultivated and wild plants, but it is uncertain whether or not the wild plants had escaped from cultivation.


藤萝 teng luo

Lianas. Stems thick, densely gray villous. Leaves 9- or 11-foliolate; rachis 15–32 cm, including petiole 2–5 cm; leaflet blades ovate-oblong to elliptic-oblong, 5–10 × 2.5–3.5 cm, gradually decreasing in size from basal to apical pair, abaxially densely white villous, adaxially sparsely white villous, trichomes persistent on both surfaces, base broadly cuneate to rounded, apex acute to acuminate. Racemes terminal, 30–35 × 8–10 cm. Pedicel 1.5–2.5 cm, straight. Flowers 2.2–2.5 cm, fragrant. Calyx violet, both surfaces tomentose. Corolla violet; standard orbicular, glabrous. Ovary tomentose, with 5 ovules. Legume oblong-oblate, 18–24 × ca. 2.5 cm, brown tomentose. Seeds ca. 3 per legume, dark brown, flat and orbicular, ca. 1.5 cm in diam. Fl. Apr–May, fr. Jul–Oct.

● Thickets and trailsides on slopes. Henan, Shaanxi.

This species is cultivated in Anhui, Jiangsu, and Shandong.


白花藤萝 bai hua teng luo

Wisteria brachybotrys Siebold & Zuccarini var. alba W. Miller.

Lianas, 2–10 m. Stems densely appressed yellow pubescent when young, glabrescent. Leaves 9- or 11-foliolate; rachis 18–35 cm, including petiole 3–5 cm; leaflet blades ovate-oblong to lanceolate-oblong, 6–10 × 2.5–5 cm with pair at middle of rachis somewhat larger than others, both surfaces appressed pubescent but abaxially more densely so especially on midvein and margin, base truncate to subcordate and asymmetric, apex acute. Racemes terminal, emerged at same time as leaves, ca. 15 × 10 cm, yellow tomentose. Pedicel 2.5–3(–3.5) cm, straight. Flowers ca. 2 cm. Corolla white; standard suborbicular, apex truncate and cuspidate. Ovary with trichomes, with 12 ovules. Legume oblong-oblate, flat, yellow tomentose. Seeds brown, round, ca. 1.2 cm in diam. Fl. Apr–Jun, fr. Aug–Sep.

● Mountain valleys. Hebei, Henan, Shandong, Shanxi.

This species usually is cultivated as an ornamental in shade.


巴豆藤属 ba dou teng shu

Wei Zhi (韦直); Les Pedley

Shrubs, scandent. Stipules present. Leaves pinnately 3-foliolate; stipels present. Pseudoracemes terminal or axillary near branchlet apex, elongated; flowering branchlet nodes with flowers in fascicles; bracts and bracteoles minute. Pedicel short. Calyx teeth 5, = equal in length. Corolla red; petals equal in length; standard orbicular, glabrous. Ovary tomentose, with 5 ovules. Legume and seeds not seen.

One species: SE Asia and China.

1. Craspedolobium unijugum (Gagnepain) Z. Wei & Pedley, comb. nov.

巴豆藤 ba dou teng

Basionym: Millettia unijuga Gagnepain, Notul. Syst. (Paris) 2: 365. 1913; Callerya unijuga (Gagnepain) H. Sun; Craspedolobium schochii Harms.

Shrubs, scandent, to 3 m. Stems dark brown, pithy, ridged, appressed puberulent when young, glabrescent when mature, with dense brown lenticels. Leaves 3-foliolate; stipels acicular; leaflet blades obovate to broadly elliptic, 5–9 × 3–6 cm, both surfaces appressed puberulent but abaxially especially dense on veins, adaxially sometimes glabrescent, base broadly cuneate to rounded and asymmetric on lateral ones, apex obtuse and cuspidate. Pseudoracemes usually congested near apex of branchlets, 15–25 cm; flowering branchlet nodes with 3–5 fascicled flowers. Pedicels, calyces, and bracteoles yellow sericeous. Corolla red, 0.9–1.1 cm, glabrous. Legume linear, 6–9 × ca. 1.2 cm, flat, papery, brown tomentose, base rounded, apex acute and shortly beaked; abaxial suture narrowly winged, continuous within. Seeds 3–5(–7) per legume, reniform, lenticular. Fl. Jun–Sep, fr. Sep–Oct.

Sparse woodlands in moist soil, along trails; 600–2000 m. NW Guangxi, SW Guizhou, Sichuan, Yunnan [Laos, Myanmar, Thailand].

The record of Millettia unijuga as treated in FRPS (40: 160. 1994) is based on a single specimen (P. I. Mao 6915, 24 Oct 1955, KUN) from S Yunnan, which was used for the illustration in FRPS (t. 47, f. 1–2). This specimen may possibly represent an as yet undescribed species.
1849.
1. Tephrosia vogelii

Cream-colored, or mauve, occasionally orange or red; standard reflexed, suborbicular, outside villous or sericeous. Stamens monadelphous; vexillary stamen somewhat distinct from other 9. Ovary sessile, with trichomes, with numerous ovules. Legume flat, occasionally inflated, dehiscent, apex often beaked; valves twisted. Seeds 5–16 per legume, oblong, ellipsoid, or occasionally globose; radicle folded.

1b. Flowers ca. 1 cm; legume 2–5 cm × 3.5–5(–6) mm.

2a. Flowers 1–2.5 cm; legume 5.5–13 cm × 5.5–14 mm.

2a. Inflorescences 3–7 cm, with congested flowers; corolla white; leaflet blades abaxially velutinous, secondary veins 15–20 on each side of midvein ................................................................. 4. T. vestita

2b. Inflorescences to 25 cm, with scattered flowers; corolla red; leaflet blades abaxially silvery sericeous, secondary veins 9 or 10 on each side of midvein ................................................................. 5. T. coccinea

2b. Flowers 2–2.5 cm; legume 8–13 cm; leaflet blades oblong-elliptic, lanceolate-elliptic, oblong, or oblong-lanceolate.

4a. Pedicel 2–2.3 cm, densely rusty villous; legume 10–13 cm × ca. 14 mm, densely creamy villous ............... 1. T. vogelii

4b. Pedicel 0.5–1 cm, densely white villous or sericeous; legume 8–10 cm × 6–8.5 mm, brown tomentose or yellow sericeous.

5a. Calyx teeth ca. 1 mm, apex rounded; leaflet blades 0.6–1.4 cm in width, oblong, secondary veins 30–50 on each side of midvein; pedicel ca. 10 mm, villous; corolla white, rarely yellow or pale pink; legume brown tomentose ................................................................. 2. T. candida

5b. Calyx teeth ca. 5 mm, apex acute; leaflet blades 1.5–2 cm in width, oblong-lanceolate, secondary veins 20 on each side of midvein; pedicel ca. 5 mm, sericeous; corolla red; legume yellow sericeous ........ 3. T. kerri

1b. Flowers ca. 1 cm; legume 2–5 cm × 3.5–5(–6) mm.

6a. Inflorescences 10–25 cm (but only ca. 2 cm in T. purpurea var. glabra), flowers scattered.

6b. Inflorescences 1–5 cm, flowers congested.

8a. Legume with 7–14 seeds.

9a. Inflorescences with 1–3 flowers; legume apex with curved or hooked beak ............................................. 8. T. pumila

9b. Inflorescences with 4–8 flowers; legume apex with a short straight beak ............................................. 9. T. luzonensis

8b. Legume with 5–7 seeds.

10a. Leaves 13–17-foliolate; leaflet blades oblong-lanceolate, abaxially sparsely pubescent, secondary veins ca. 9 on each side of midvein, mauve, conspicuous; legume slightly curved at tip, 3.5–4 cm ................................................................. 10. T. ionophlebia

10b. Leaves 11- or 13-foliolate; leaflet blades obovate, both surfaces densely sericeous, secondary veins 5–8 on each side of midvein, almost inconspicuous; legume straight, 2–2.5 cm ......................... 11. T. obovata

1. Tephrosia vogelii J. D. Hooker in Hooker, Niger Fl. 296. 1849.

灰毛豆 xi fei hui mao dou

Herbs, perennial, erect, many branched. Stems tomentose with short and long white and yellow trichomes, trichomes ca. 1.5 mm. Leaves 13–29-foliolate; rachis 10–25 cm, including petiole 1–3 cm; leaflet blades oblong-elliptic to lanceolate-elliptic, 3–7 × 0.9–1.8 cm, abaxially densely mixed white and yellow tomentose, adaxially appressed white sericeous, secondary veins 12–15 on each side of midvein. Pseudoracemes terminal or axillary near apex of branchlets, 10–15 cm, rusty tomentose, long pedunculate. Pedicel 2–2.3 cm, rusty villous. Flowers ca. 2.5 cm. Calyx ca. 1.2 × 1 cm, brown tomentose; teeth oblong, ca. 1 cm, apex rounded but adaxial one usually acute. Corolla white or occasionally violet; standard orbicular, sericeous. Ovary sericeous, with numerous ovules. Legume linear, 10–15 cm × 12–14 mm, straight, yellowish white tomentose, rusty on suture, apex beaked. Seeds 12–16 per legume, black, broadly ovoid, ca. 7 × 4.5 mm, smooth. Fl. and fr. year-round. 2n = 22.

Cultivated in S Guangdong, Hainan, and Taiwan [native to tropical Africa].

白灰毛豆 bai hui mao dou

Robinia candida (Candolle) Roxburgh.

Herbs, perennial, suffrutescent, 1–3.5 m tall. Stems ridged, grayish white tomentose, trichomes ca. 1 mm. Leaves 17–25-foliolate; rachis 15–25 cm, including petiole 1–3; leaflet blades oblong, 3–6 × 0.6–1.4 cm, abaxially densely sericeous, adaxially glabrous, secondary veins 30–50 on each side of midvein. Pseudoracemes terminal or lateral, 15–20 cm. Pedicel ca. 1 cm, densely white villous. Flowers ca. 2 cm. Calyx ca. 5 × 5 mm; teeth equal, ca. 1 mm, apex rounded. Corolla white, rarely yellow or pale pink; standard densely sericeous. Ovary tomentose, teeth equal, ca. 1 mm, apex rounded. Corolla white, rarely yellow or white appressed sericeous. Ovary stipitate, with numerous ovules. Legume linear, 8–10 cm × 7.5–8.5 mm, straight, brown tomentose with a mixture of long and short trichomes, apex truncate and with a straight ca. 1 cm beak. Seeds 10–15 per legume, olive-green with dark patches, ellipsoid, ca. 5 × 3.5 mm, smooth. Fl. Oct–Nov, fr. Dec. 2n = 22, 24.

Cultivated or escaped, grasslands, open places, slopes. Fujian, Guangdong, Guangxi, Taiwan, Yunnan [native to India; widely cultivated and escaped elsewhere].

This species is grown as a green mulch.


黄灰毛豆 hui mao dou

Herbs, perennial, to 3 m tall, densely yellow spreading villous. Stems erect, sturdy, ridged, apically branched. Leaves 11–17-foliolate; rachis 9–15 cm, including petiole ca. 5 mm; leaflet blades oblong-lanceolate, 5–8 × 1.5–2 cm, abaxially densely sericeous, adaxially olive-green and glabrous, secondary veins 20 on each side of midvein and conspicuous, base obtuse to cuneate, apex acute and cuspidate. Pseudoracemes terminal, when immature cone-shaped and covered by bracts, elongated to ca. 10 cm at anthesis. Pedicel ca. 5 mm, densely white sericeous. Flowers ca. 2.2 cm. Calyx ca. 8 × 6 mm; teeth narrowly triangular, most abaxial one longest and ca. 5 mm, apex acute. Corolla red; standard obovate, yellow sericeous. Ovary sericeous, with numerous ovules. Legume linear, 8–10 cm × 6–8 mm, straight, spreading and slightly nodding, yellow sericeous, apex with a ca. 1 cm slightly ascending beak. Seeds 10–12 per legume but characters unknown. Fl. Oct, fr. Dec.

Moist places in valleys, open places, along trails; 700–1000 m. S Yunnan [Laos, Thailand, Vietnam].


黄灰毛豆 hui mao dou

Herbs, perennial, suffrutescent, 1–2 m tall, many branched, yellowish white velutinous. Stems zigzag ascending, ridged. Leaves 7–11(or 13)-foliolate; rachis ca. 10 cm, including petiole 1–1.5 cm; leaflet blades obovate-elliptic to narrowly elliptic, 2–4 × 1–1.8 cm, abaxially velutinous, adaxially rough and glabrous, secondary veins 15–20 on each side of midvein, base cuneate, apex rounded to retuse. Pseudoracemes terminal or opposite leaf near apex of branchlets, 3–7 cm, with congested flowers. Pedicel ca. 2 mm. Flowers ca. 1.7 cm, fragrant. Calyx ca. 3 × 4 mm. Corolla white; standard suborbicular, yellow velutinous. Ovary sericeous, with numerous ovules. Legume linear, 5.5–6 cm × ca. 5 mm, straight, flat, densely yellow velutinous, apex abruptly pointed and with a ca. 1 cm beak. Seeds 10–12 per legume, black, reniform, ca. 3 × 2.5 mm. Fl. Jun–Oct, fr. Jul–Nov.

Spare woody fields, grasslands. Guangdong, Guangxi, Hainan, Jiangxi [Cambodia, Indonesia, Laos, Malaysia, Papua New Guinea, Philippines, Thailand, Vietnam].


紫叶红灰毛豆 xie ya hong hui mao dou

Herbs, perennial, suffrutescent, 40–50 cm tall, many branched. Stems woody, terete; young branchlets 4-sided, silvery or white appressed sericeous. Leaves subsessile, 5- or 7(or 9)-foliolate; rachis 6–10 cm; leaflet blades linear-oblancoate to oblong-oblancoate, 4–6 × ca. 1 cm with basal pair smallest and terminal one longest, abaxially silvery sericeous, secondary veins 9 or 10 on each side of midvein. Pseudoracemes terminal or opposite a leaf, ca. 25 cm, with scattered flowers. Pedicel 3–6 mm. Flowers ca. 1 cm. Calyx ca. 5 mm. Corolla red; standard orbicular, outside sericeous, inside glabrous. Ovary stipitate, with 10–12 ovules. Legume linear, ca. 6 cm × 7–8 mm, flat, tomentose. Seeds 8–12 per legume, black, reniform, ca. 8 × 5 mm. Fl. and fr. Dec.–Feb.

- Sandy fields in open areas. Hainan.

*Tephrosia coccinea* var. *coccinea* occurs in India, Laos, Myanmar, and Vietnam.


灰毛豆 hui mao dou

Herbs, perennial, 30–60(–150) cm tall, many branched, puberulent, densely spreading villous, or glabrescent. Stems nearly erect to spreading, with a woody base, ridged. Leaves 9–17(or–21)-foliolate; rachis 7–15 cm, including petiole ca. 1 cm; leaflet blades oblong-elliptic, oblancoate-elliptic, or obovate-elliptic, 1.5–3.5(–4.5) × 0.4–1.5 cm, secondary veins 7–12 on each side of midvein, base narrowly rounded, apex obtuse, truncate, or retuse and cuspidate. Pseudoracemes terminal, opposite a leaf or axillary near apex of branchlets, ca. 2 or 10–15 cm. Pedicel 2–4 mm, slender, slightly elongate in fruit. Flowers ca. 8 mm. Calyx 2–4 × ca. 3 mm; teeth equal. Corolla mauve; standard orbicular, white puberulent. Ovary with trichomes, with 5–8 ovules. Legume linear, 3–5 cm × 3.5–4(–6) mm, with sparse appressed trichomes, apically slightly curved. Seeds ca. 6 per legume, grayish brown, ellipsoid, ca. 3 × 1.5 mm, with or without spots, smooth or rough. Fl. Mar–Oct, fr. Sep–Dec.

Open places, slopes, sandy grasslands by oceans, grasslands by river margins; near sea level to 700 m. Fujian, Guangdong, Guangxi, Hainan, Sichuan, Taiwan, Yunnan [Cambodia, India, Indonesia, Laos, Malaysia, Nepal, Sri Lanka, Thailand, Vietnam].
1a. Plants glabrescent; inflorescences ca. 2 cm; legume ca. 3 cm × 3.5 mm, glabrous.  
6b. var. glabra

1b. Plants ± pubescent or densely spreading villous; inflorescences 10–15 cm; legume 4–5 cm × (4–)6 mm, with trichomes.

2a. Plants puberulent; stipules ca. 4 mm; leaflet blades abaxially appressed pubescent, adaxially glabrous; seeds grayish brown, spotted, smooth.  
6a. var. pubrea

2b. Plants densely spreading villous; stipules ca. 12 mm; leaflet blades with both surfaces villous but abaxially more densely so especially on midvein and margin; seeds rough, without spots.  
6c. var. yunnanensis

6a. Tephrosia purpurea var. purpurea

灰毛豆 (原变种) hui mai dou (yuan bian zhong)

Cracca purpurea Linnaeus, Sp. Pl. 2: 752. 1753; Galega purpurea (Linnaeus) Linnaeus; Glycyrrhiza mairei H. Lévêillé.

Plants ± pubescent. Stipules ca. 4 mm. Leaflet blades oblong-elliptic to oblanceolate-elliptic, 1.5–3.5 × 0.4–1.4 cm, abaxially appressed pubescent, adaxially glabrous. Racemes ca. 10 cm, slender. Legume 4–5 cm × 4(–6) mm, with trichomes. Seeds grayish brown, spotted, smooth. 2n = 22, 44.

Open places, slopes. Fujian, Guangdong, Guangxi, Hainan, Taiwan, Yunnan [Cambodia, India, Laos, Malaysia, Nepal, Sri Lanka, Vietnam].


秃净灰毛豆 tu jing hui mai dou

Herbs suffrutescent, glabrescent. Leaves 13-foliolate. Racemes ca. 2 cm, shorter than subtending leaf. Legume ca. 3 cm × 3.5 mm, glabrous.

- Sandy grasslands by oceans; near sea level. S Taiwan.


云南灰毛豆 yun nan hui mai dou

Plants densely spreading villous. Stipules ca. 1.2 cm. Leaflet blades obovate-elliptic, 1.5–2(–4.5) × 0.6–1.5 cm, both surfaces villous but abaxially more densely so especially on midvein and margin. Racemes 10–15 cm. Legume 4–5 cm × 4(–6) mm, with trichomes. Seeds rough, without spots.

- Grasslands by river margins; ca. 700 m. Sichuan, Yunnan.


长序灰毛豆 chang xu hui mai dou

Tephrosia hookeriana Wight & Arnott var. amoena Prain.

Herbs, perennial, suffrutescent, 0.5–1.5 m tall. Stems terete, with dense spreading trichomes. Stipules narrowly triangular, 6–11 mm, persistent, apex acuminate. Leaves 15–25-foliolate; rachis 7–11 cm, including petiole 0.7–1.3 cm; leaflet blades oblong-oblanceolate, 2.2–3.2 × 0.5–0.8 cm with terminal one slightly larger than others, abaxially densely appressed sericeous, adaxially glabrous, secondary veins 9–11 on each side of midvein, base cuneate, apex rounded to retuse and cuspidate. Pseudoracemes terminal, 15–25 cm, rigid and straight, with scattered flowers. Pedicel 2–4 mm. Flowers ca. 1 cm. Calyx ca. 5 × 5 mm, densely brown pubescent; teeth unequal, most abaxial one 4–6 mm and narrow, other ones short and broad. Corolla yellow, violet, or white; standard orbicular, brown sericeous. Ovary sericeous, with numerous ovules. Legume linear, 4.5–5 mm × ca. 5 mm, straight, densely brown pubescent, apex ascending curved. Seeds 7–9 per legume, black, reniform, ca. 4 × 2.5 mm, usually transversely rugose. Fl. and fr. Nov–Jan. 2n = 22.

Introduced and escaped in ravines near shorelines, coastal grasslands; below 100–700 m. Guangdong, Taiwan, Yunnan [native to tropical Africa].


矮灰毛豆 ai hui mai dou

Galega pumila Lamarck, Encycl. 2: 599. 1788.

Herbs, annual or perennial, procumbent or straggling, 20–30 cm tall. Stems thin and hard, ridged, densely spreading strigose. Stipules 3–4 mm. Leaves 7(–13)-foliolate; rachis 2–4 cm, including petiole 3–10 mm; leaflet blades narrowly obovate to oblanceolate, 1.2–2 × 0.4–0.8 cm, abaxially appressed pubescent, secondary veins 6 or 7 on each side of midvein and obscure, base cuneate, apex truncate to obtuse and cuspidate. Pseudoracemes terminal or opposite a leaf, ca. 2 cm, strigose, with 1–3 flowers. Pedicel 2.5–4 mm. Flowers ca. 6 mm. Calyx ca. 3 × 2 mm. Corolla white, yellow, or rarely pale pink; standard orbicular, pilose. Ovary with trichomes, with numerous ovules. Legume linear, 3.5–4 cm × ca. 4 mm, shortly strigose, apex slightly ascending curved and with a beak; style remnant sharply reflexed. Seeds 8–14 per legume, brown, oblong-rhomboid, ca. 4 × 3 mm, mottled. Fl. and fr. year-round. 2n = 22, 44.

Sunny places on slopes or trailsides; ca. 500 m. Guangdong [tropical Africa, Asia, and N Australia].


西沙灰毛豆 xi sha hui mai dou

Herbs, annual, 10–15(–100) cm tall, many branched, white spreading pilose. Stems erect, procumbent, or ascend, base slightly woody. Stipules ca. 4 mm. Leaves (5–)9–13(–21)-foliolate; rachis 5–10 cm, including petiole ca. 1 cm; leaflet blades narrowly oblanceolate, 1.3–3 × 0.3–0.7 cm, abaxially densely gray pubescent, adaxially appressed puberulent, secondary veins 10 on each side of midvein, base cuneate, apex rounded or retuse and cuspidate. Pseudoracemes axillary, with 4–8 flowers gathered on apical half of rachis. Pedicel 3–4 mm. Flowers ca. 7 mm. Corolla pale red flushed with purple. Legume linear, 2.5–3.5 cm × ca. 4 mm, slightly curved, strigose,
apex with a straight beak. Seeds 7–12 per legume, black, sub-globose, ca. 2 mm. Fl. and fr. year-round.

Open sandy seashores; near sea level. Guangdong (Xisha Qundao: Yongxing Dao) [Indonesia, Philippines, Thailand].


台灣灰毛豆 tai wan hui mao dou

Herbs, perennial, suffrutescent. Stems erect or ascendant, appressed yellow puberulent. Stipules 3–6 mm, abaxially strigose, apex acuminate. Leaves 13–17(–21)-foliolate, sometimes with axillary cataphylls; rachis 6–8 cm, including petiole 1–1.5 mm; leaflet blades oblong-oblanceolate, 15–18 × ca. 5 mm with largest at middle of rachis, abaxially sparsely strigose, adaxially glabrescent, secondary veins ca. 9 on each side of midvein, reticulate veins clearly marked and purplish red especially abaxially, base broadly cuneate, apex rounded to retuse and cuspidate. Pseudoracemes terminal or opposite a leaf, 2–5 cm, straight, strigose, elongated in fruit. Pedicel ca. 4 mm, slender. Flowers ca. 1 cm. Calyx ca. 5 × 3 mm. Corolla red; standard broadly orbicular, outside pubescent. Ovary linear, with numerous ovules. Legume linear, 3.5–4 cm × ca. 4 mm, strigose, apically slightly curved. Seeds 5–7 per legume, pale brown, ellipsoid, ca. 3 × 1.5 mm, scabrous. Fl. and fr. Sep–Dec.

- Open places or wastelands. Taiwan.

This species was treated as Tephrosia purpurea in Fl. Taiwan (ed. 2. 3: 371. 1993).


卵叶灰毛豆 luan ye hui mao dou

Herbs, perennial, small. Stems straggling, appressed puberulent, base woody. Stipules subulate, 2–4 mm. Leaves (9 or)11- or 13-foliolate; rachis ca. 5 cm, including petiole ca. 1.5 cm; leaflet blades obovate, ca. 1.4 × 0.6 cm, both surfaces appressed sericeous but abaxially especially dense, secondary veins 5–8 on each side of midvein and obscure, base rounded-cuneate, apex emarginate and cuspidate. Pseudoracemes terminal or axillary, short. Flowers ca. 1 cm. Calyx campanulate, ca. 3 mm. Corolla red; standard orbicular, outside pubescent. Ovary with trichomes. Legume linear, 2–2.5 cm × ca. 4 mm, straight, densely velutinous. Seeds 6 or 7 per legume, pale brown, ellipsoid, ca. 2.5 × 2.2 mm. Fl. and fr. Mar–Aug.

Sandy or rocky areas; near sea level. Taiwan [Philippines].

The report (FRPS 40: 222. 1994) of Tephrosia filipes Bentham from Taiwan is most likely a misidentification of this species and is based on a single specimen from the Hengchun peninsula of S Taiwan in the Herbarium of the Shanghai Museum of Natural History (SHM) collected at “Ma-lan-bi” on cliffs.